The University of Iowa
General Catalog 1978-80

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Copies of this Catalog are available for examination in all Iowa high schools, offices of the county superintendents of schools, public libraries and junior and community colleges; at the major state government offices in Des Moines; and in each office of the University. Copies may be purchased from the Office of Admissions without charge. Reprints of individual sections of the Catalog are also available without charge. This Catalog is published for informational purposes and should not be construed as the basis of a contract between a student and The University of Iowa. Every effort is made to provide information that is accurate at the time the catalog was prepared. However, information concerning regulations, policies, fees, curricula, courses, and other matters contained in this Catalog is subject to change at any time during the period for which the catalog is in effect. Current information regarding fees, important dates and the availability of courses can be found in the schedule of courses that is available before each term or by request from the Office of Admissions.
## University Calendar

### First Semester (1978-79)
- **Advising and counseling**: August 28
- **Registration begins**: August 29
- **Classes begin**: August 31
- **University holiday**: September 4
- **Homecoming**: October 28
- **Thanksgiving recess**: November 22
- **University holiday**: November 23
- **Classes resume**: November 24
- **Classes end**: December 15
- **Examination Week begins**: December 18
- **Examination Week ends**: December 22
- **Commencement**: December 22
- **University holiday**: December 25-26
- **University holiday**: January 1

### Second Semester (1978-79)
- **Registration begins**: January 18
- **Classes begin**: January 22
- **Spring vacation begins**: March 23
- **Classes end**: May 11
- **Examination Week begins**: May 14
- **Examination Week ends**: May 18
- **Commencement**: May 19
- **University holiday**: May 28

### Summer Session (1979)
- **Registration**: June 4
- **Classes begin**: June 5
- **University holiday**: July 4
- **Summer Session ends**: July 27
- **Commencement**: July 27
- **Independent Study Unit open for Law and Graduate students**: July 30
- **Independent Study Unit ends**: August 24
- **University holiday**: September 3

### Year 1979-80
- **Advising and counseling**: August 27
- **Registration begins**: August 28
- **Classes begin**: August 30
- **University holiday**: September 3
- **Homecoming**: October 28
- **Thanksgiving recess**: November 21
- **University holiday**: November 22
- **Classes resume**: November 23
- **Classes end**: December 14
- **Examination Week begins**: December 17
- **Examination Week ends**: December 21
- **Commencement**: December 22
- **University holiday**: December 25-26
- **University holiday**: January 1

### Year 1979-80
- **Registration begins**: January 17
- **Classes begin**: January 21
- **Spring vacation begins**: March 21
- **Classes end**: May 9
- **Examination Week begins**: May 12
- **Examination Week ends**: May 16
- **Commencement**: May 17
- **University holiday**: May 26

### Year 1980
- **Registration**: June 9
- **Classes begin**: June 10
- **University holiday**: July 4
- **Summer Session ends**: July 27
- **Commencement**: August 1
- **Independent Study Unit open for Law and Graduate students**: August 4
- **Independent Study Unit ends**: August 8
- **University holiday**: September 1
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General Information

The University of Iowa is one of Iowa's three state universities. The core of the University is the College of Liberal Arts. Within the College there are eleven schools: Art and Art History, Journalism, Letters, Library Science, Music, Religion, and Social Work. The College of Liberal Arts is closely allied with the professional colleges of Business Administration, Dentistry, Education, Engineering, Law, Medicine, Nursing and Pharmacy, as well as with a Graduate College of some 5,000 students—all located on the University's single campus in Iowa City. Some faculty members from the University's professional colleges also teach undergraduate classes in the College of Liberal Arts, including participation in an increasing number of interdisciplinary courses. Total enrollment at the U of I during 1977-78 was about 22,000 students.

Founded on February 26, 1847, The University of Iowa is the state's oldest institution of higher education. During its long history, the University has been innovative—and also has earned national, and even international, prominence for many of its programs. For example:

- it established the first law school west of the Mississippi.
- it was the country's first institution of higher education to accept women and men on an equal basis (the year was 1862).
- it became the first university to accept creative work in lieu of the traditional academic thesis from graduate students in the arts.
- The U of I pioneered the now-world-recognized Iowa Writers Workshop for creative literature (the Workshop was established as a formal program in the mid-1900s).
- The University also is recognized as the place where the word of speech pathology was originated.

Many other experiments in the University's ten colleges also have achieved significant accomplishments for the quality and productivity of their teaching and research programs in such fields as space physics, expository writing and the teaching of composition, and in graduate programs in speech, dramatic art and communication.

to cite just a few recent examples.

The U of I student body includes some 1,500 full-time undergraduates, many of whom have achieved national and international reputations. Their effectiveness as teachers is significantly enhanced by involvement in purerly and scientific research. The U of I seeks to foster faculty activity by maintaining a healthy balance between teaching and research, and between undergraduate and graduate-professional instruction.

The University's undergraduate enrollment is about evenly divided between men and women students. Approximately four out of five undergraduates are Iowa residents. The balance consists of students from all other 49 states and many more than 70 foreign countries. About 66 percent of the University's entering freshmen had a "B" average or above in high school. Approximately 66 percent ranked in the upper half of their high school classes and about 27 percent ranked in the upper tenth.

The U of I offers a comprehensive program of student financial aids. Half of the University's students have some form of employment. One-fifth have education loans. One of ten undergraduates and one of five freshmen have scholarships. Most U of I scholarships are awarded on the basis of demonstrated financial need and academic excellence, with a small number of grants awarded solely for scholarly achievement. Reflecting a growing trend toward lifelong learning, the University in recent years has significantly expanded educational programs both on- and off-campus for individuals who cannot enroll as regular full-time students. These "non-traditional" learning opportunities range from mini-courses, conferences, workshops, and continuing education programs for professionals to Saturday and Evening Courses offered on campus and off-campus. In 1977 the U of I, in cooperation with Iowa's other two state universities, inaugurated a new Bachelor of Liberal Studies (B.L.S.) degree program geared specifically to adults who wish to earn a college degree but are unable to enroll in traditional on-campus study.
Degree Programs
The University offers the following degrees. The major fields are listed in the various college sections of the Catalog:
Bachelor of Arts, Bachelor of Science, Bachelor of Music, Bachelor of Fine Arts, Bachelor of General Studies, Bachelor of Liberal Studies, Bachelor of Business Administration, Bachelor of Science in Engineering, Bachelor of Science in Chemical Engineering, Bachelor of Science in Civil Engineering, Bachelor of Science in Electrical Engineering, Bachelor of Science in Industrial Engineering, Bachelor of Science in Mechanical Engineering, Bachelor of Science in Pharmacy, Bachelor of Science in Nursing, Doctor of Dental Surgery, Doctor of Medicine, Master of Arts, Master of Science, Master of Business Administration, Master of Fine Arts, Master of Social Work, Master of Arts in Teaching, Education Specialist, Master of Comparative Law, Doctor of Musical Arts, and Doctor of Philosophy.

Accreditation and Associations
The University of Iowa has been accredited by the North Central Association of Colleges and Secondary Schools since the Association's organization in 1913. The University is a member of the Association. It is associated with Northwesteminia, Indiana, Purdue, Ohio State, and Michigan State universities, and the universities of Minnesota, Wisconsin, and Michigan in the Western Conference. It is associated with the "Big Ten" universities and the University of Chicago in the Committee for Institutional Cooperation (CIC).

Several colleges and schools of the University are members of accrediting associations in their respective fields, as follows:

Colleges
Business Administration—American Assembly of Collegiate Schools of Business
Dentistry—American Dental Association
Education—National Council for Accreditation of Teacher Education
Engineering—Engineers Council for Professional Development of the American Society for Engineering Education

Law—American Bar Association and Association of American Law Schools
Medicine—Lincoln Committee on Medical Education [representing the American Medical Association and the Association of American Medical Colleges]
Nursing—National League for Nursing
Pharmacy—American Council on Pharmaceutical Education

Schools
Journalism—American Council on Education in Journalism
Library Science—American Library Association
Music—National Association of Schools of Music
Social Work—Council on Social Work Education

Departments and Programs
Chemistry—American Chemical Society
Dental Hygiene—American Dental Association Council on Dental Education
Hospital Administration—Accrediting Commission on Education for Health Service Administration
Medical Technology—National Accrediting Agency for Clinical Laboratory Sciences
Physician's Assistant—American Medical Association Council on Medical Education in collaboration with the Joint Review Committees on Educational Programs for the Assistant to the Primary Care Physician
Physical Therapy—American Medical Association Committee on Allied Health Education Accreditation and the American Physical Therapy Association
Nuclear Medical Technology—American Medical Association
Psychology—American Psychological Association
Speech Pathology and Audiology—American Speech and Hearing Association

Sessions
The University's academic year consists of two semesters of approximately 17 weeks each. The University also conducts an eight-week summer session and, following that, an Independent Study Unit of from one to four additional weeks for students in the Graduate College and the College of Law.

Code of Student Life
As members of the academic community, students are encouraged to develop a capacity for critical judgment and to engage in independent and active search for truth. The tendency to learn and the freedom to teach depend upon appropriate appreciation and conduct in the classrooms, on the campus, and in the larger community. Students are expected to respect the general conditions conducive to such freedoms. Accordingly, the University has developed a Code of Student Life that is intended to provide and safeguard the right of every individual student to exercise fully his or her freedom to learn without undue interference by others. This Code applies only to student misconduct which adversely affects some University process or function or some other individual and is concerned only with student behavior and 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 enforces.

Human Rights
The University is guided by the principle that in no aspect of its programs shall there be a difference in the treatment of persons because of race, creed, color, national origin, age, sex, or any other classification that deprives the person of consideration as an individual, and that equal opportunity and access to facilities shall be available to all. This principle is expected to be observed in the admission, housing, and education of students, in policies governing programs of extracurricular life and activities; and in the employment of faculty and staff personnel. The University works cooperatively with the community in furthering this principle.

University Marking System
Mark Definition       Grade Points/ Semester Hour
A above average       4
B average             3
C above average       2
D average             1
F failing             0
H+ above honor        
H- honor              
P incompletes         
O* no grade +unlimited 
P+ passing            
R+ audit              
S* satisfactory       

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.

Application Deadlines
Applicants for admission must submit the required application documents to the Office of Admissions by the deadlines listed below. Foreign students usually have earlier application deadlines (see "Foreign Students" below).

College of Liberal Arts
Ten days before Registration begins—all sessions
College of Business Administration
May 1—Summer Session
June 1—Fall Semester
November 15—Spring Semester
College of Dentistry
December 1—Fall Semester only
College of Engineering
Ten days before Registration begins—all sessions
Graduate College
The following are general Graduate College deadlines. Some departments may have earlier deadlines. Early submission of materials is advised. To be considered for graduate awards, the students must apply by February 1 for the fall semester.
May 1—Summer Session
July 15—Fall Semester
December 1—Spring Semester
College of Law
March 1—Summer Semester and Fall Semester

College of Medicine
December 1—Fall Semester only

College of Nursing
March 1—Fall Semester
June 15—Spring Semester
January 15—Summer Session

College of Pharmacy
March 1—Fall Semester only

Dental Hygiene Program
April 1—Fall Semester only

Physical Therapy Program
February 1—Fall Semester only

Physician's Assistant Program
January 15—Fall Semester only

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

Foreign Students
The University of Iowa encourages foreign students to begin the process of applying for admission at least twelve months prior to matriculation. The applicant should have satisfied all the application procedures and submitted his/her complete application file to the Admissions Office by the dates given:

Graduate College
Those applying to the University of Iowa for financial assistance (scholarships, fellowships, assistantships): February 1—Summer Session or Fall Semester
October 1—Spring Semester

Students who will not require University financial support:
March 1—Summer Session
April 15—Fall Semester
October 1—Spring Semester

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

Honorary and Professional Societies
Phi Beta Kappa, Sigma Xi, Mortar Board, and Omicron Delta Kappa are among 84 national honorary and professional societies in which The University of Iowa has active chapters.

Admission
Correspondence regarding admission to any college of The University of Iowa should be addressed to the Admissions Office, 108 Calvin Hall, The University of Iowa, Iowa City, Iowa 52242. The first letter should request an application for admission, briefly describe the prospective candidate's high school or college background and outline his or her plans for further study, including the department or general field in which he or she expects to major. All applicants for admission to all colleges of the University must submit final applications to the Admissions Office and must furnish official transcripts and other supporting material as specified.

Determining Residence
For admission, tuition, and fee purposes, the University Registrar classifies all students
Graduate and Professional College Examinations

Prospective Graduate College applicants should take the Graduate Record Examination (GRE) Aptitude 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.

Application Fee
A $10 application fee must accompany application submitted by prospective students not previously enrolled for full-time study at the University during the regular academic year. A Graduate College applicant must pay the fee, unless he or she has earned a degree from The University of Iowa. Iowa fees are not refundable, except to Iowa residents who are deferred admission.

Medical Information
In the interest of providing optimum health care, Student Health Service strongly recommends that following their admission, incoming students submit physical examination reports and personal health histories on the forms provided for that purpose. This information does not affect the student's admission and is only used in the use of Student Health Service as necessary background for attempting to meet the student's health needs.

Tuition and Fees
The following is the University's schedule of tuition and fees, per semester, for the academic year:

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<th>Graduate</th>
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<tr>
<td>Hours</td>
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<tr>
<td>1</td>
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<td>11</td>
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*Note: Hours beyond 12 are not allowed.

Complete hours per term

Extension courses $26 per semester hour. Correspondence courses $25 per semester hour.

General fees provide for the Student's use of Iowa Memorial Union facilities, and of libraries, laboratories, and gymnasium; free admission to minor sports events and to student-faculty concerts and plays; reduced rates for admission to major sports events and to performances by visiting stage and concert artists; subscriptions to the student newspaper, the Daily Iowan, on a housing unit basis; certain student hospital services; and all other activities and services as announced.

Registration
All persons who attend University classes are required to register and pay the established tuition and fees. Students in the Graduate College and the colleges of Engineering, Liberal Arts and Nursing may audit courses with proper approval. Students who audit courses will be assessed fees based on the lowest credits for which the course is available that semester.

Procedure for Payment of Student Accounts
Tuition and fees, board, room, and other University residence hall or fraternity-sorority housing expenses, and such incidental University expenses as library and parking fees, are payable on an installment basis, with final payment due before March 1 and November 1 for the fall semester, and by the first of February, March, and April for the spring semester. Students who become delinquent over the 15th of the month are reported to the Registrar for cancellation of registration. There is a $30 fee for reinstatement.

Refund Schedule
Students who cancel their registration upon approval of a regular semester register may receive a refund of the weekly fee assessed as follows: during the first week—75%; during the second week—50%; during the third week—25%; during the fourth week—10%.
An introduction of fees for cancellations after the third week of classes.

Numbering of Courses

Each course in the regular University curriculum has an identifying number, preceded by the number of the college, department or program by which the course is administered. For example, "E.11" is the code for the course numbered 11 in the Department of Biology (E), entitled "Introduction to Biology." Course numbers below 100 designate courses "Primarily for Undergraduates," numbers 100 to 199 designate courses "For Undergraduates and Graduates," and numbers 200 and above designate courses "Primarily for Graduates."
Services for Students

Academic Advisory Offices

Each student is assigned a faculty advisor to assist with registration, educational planning, and academic counseling. Students planning to complete professional courses are assigned academic advisers from the areas of their choice. Students in the professional colleges are advised by the college deans or their designee-representatives. Graduate students are advised by their department heads and the Graduate College Dean. In addition, academic advising advisers also serve as general consultants to students, refer those with special problems to the appropriate areas.

The Action Studies Program

Patterned after the "free university" concept, the Action Studies Program provides a vehicle to immediate response to student demand for courses currently not offered. Educational for initiation as part of the regular University curriculum. Anyone with an interest in a particular topic may set up a course with the help of Action Studies. The course is generally open to anyone who is interested in the course. Courses taken for no credit are free. Regular tuition is charged for credit courses. Most of the courses in the Action Studies Program run concurrently with the regular University schedule. A catalog with course descriptions, times, and meeting places is printed every semester.

Admissions

All inquiries, transcripts, evaluations of transfer credit, and applications for admission into any college of the University should be directed to the Office of Admissions.

Career Services and Placement Center

Career Planning

Activities include help in developing realistic career plans, locating career alternatives, relating to major fields of study or interests, learning how to use career information and resources to expand awareness of career options and prepare to enter the work world. Assistance provided through individual career advising, workshops, career days, group and seminars, and a two-credit course, "Making a Vocational Educational Choice."

Career Resource Center

The Career Resource Center offers assistance from its professional advising staff, its collection of career pamphlets and tapes, job search aids, education directories, and employer files.

Cooperative Education

Coordinated by the Career Services and Placement Center, the Cooperative Education Program offers students the opportunity to alternately academic studies with related work experiences. Students who meet the prerequisites of their respective colleges or academic departments generally enter the Program following their first two years. Cooperative education positions are filled on a competitive basis with participating employers making the final selections from among the student candidates.

Placement

Job placement assistance is provided for all seniors and graduate students seeking employment in business, industry, government, and nonprofit agencies. Activities include individual consultations with professional placement advisers, seminars for developing job-hunting/interviewing skills, on-campus interviews with prospective employers, information on employment traps for college graduates, background data on employers, and data on current job opportunities. (Also see "College of Engineering" and "College of Education" for placement services these colleges offer.)

Counseling Service

University Counseling Service offers vocational, educational, and personal counseling.
therapy through individual or group sessions. It also offers a number of programs, workshops, and seminar activities. All services are available to students without cost. Faculty and staff are eligible for limited services. University Counseling Service is staffed by psychologists and advanced doctoral students.

Dental Service

The dental clinics at the University of Iowa College of Dentistry are primarily for educational purposes. All employees of the University and all students who are registered in 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 Service and does not render service under the Student Health Hospitalization fund. Fees are established for all treatments rendered, and patients are to pay cash or use their Master Charge cards.

Evaluation and Examination Service

Evaluation and Examinations Service duplicates, scores and analyzes many course examination and testing materials. Faculty members develop and improve their classroom tests by providing thorough analyses of the results of examinations. It also helps faculty or student groups with project research in general expository, such as teacher education (curriculum and development. Additionally, it conducts institutional research projects and provides consulting services on questionnaire and survey design.

It administers many of the University's required and optional tests for assessing students, and it is also a center for many national testing programs, including the American College Test (ACT), Medical College Admission Test (MCAT), Graduate Record Examination (GRE), Graduate Management Admission Test (GMAT), Graduate Foreign Language Test (GFLT), Law School Admission Test (LSAT), Test of English as a Foreign Language (TOEFL), Miller Analogies Test (MAT), and College-Level Examination Program (CLEP).

Health Service

The Student Health Service is located in the Children's Hospital in the University medical complex. All registered students at the University are eligible for outpatient care at the Student Health Clinic. There are charges for hospitalization, X-rays and some special procedures. All students are advised to have health and accident insurance. Such coverage is not available under an existing family or group plan policy. A University-sponsored group insurance is available for individual students or as a family plan.

High School-College Relations

Administered as a part of the Office of Admissions, the high School-College Relations Office coordinates and implements all admissions operations and maintains close relations with secondary schools and institutions of higher education.

Intercollegiate Athletics for Men

The University is a member of the Western Intercollegiate Conference (Big Ten) and has athletic programs in football, basketball, track, baseball, swimming, golf, wrestling, tennis, cross-country and gymnastics. Operating policies are determined by the Board of Control of Athletics, which is composed of 12 members from the University teaching and administrative staff, two University alumni, one representative of the University Student Council and two students.

Intercollegiate Athletics for Women

Women's intercollegiate athletics at The University of Iowa include basketball, cross-country, field hockey, golf, gymnastics, softball, swimming, tennis, track and field, and volleyball. Athletic scholarships are available to talented female athletes in all sports.

The University is a state, regional, and national member of the Association for Intercollegiate Athletics for Women (AIAW), and fully supports its efforts in state, regional and national AIAW competitions.

Regularly scheduled competition includes other Big Ten universities. Through the Women's Intercollegiate Sports Committee, each student athlete has a voice in the determination of Women's Athletic Department policies. The voting membership of the committee comprises a team representation in each sport, the coach in each sport, a student-elect president, and the women's athletic director.

(Office of) International Education and Services (OIES)

The OIES assists American students who wish to study, travel, or work abroad, and counsels foreign students who wish to attend the University. The Foreign Student Advisers in the OIES provide immigration advice, information, and counseling for over 1,000 foreigners and their families. The OIES operates the International Center, a facility for international students, and facilitates the foreign students community.

Intramural Sports and Recreational Activities

Through the University Division of Intramural Services, all interested students have opportunities to participate in more than 20 different intramural sports and recreational activities. Several "Recreational Services" in "General Services and Faculties."

(Office of) Overseas Study and Travel Abroad

The Office of Overseas Study and Travel Abroad serves University of Iowa students who wish to study, work, or travel abroad. Its extensive study-abroad programs offered by the University and by foreign or overseas institutions of higher learning as well as information on foreign universities and special collections, volunteer work, student rights and immigration.
The Reading Lab offers one service course, Voluntary Reading Lab, which meets twice a week for 12 weeks. Students may attend more or less often if they wish, and they may enroll at any point during that time if they feel they need reading help. The Lab carries no credit and assigns no grade. Ordinarily, no outside assignments are given. Developmental reading work is restricted to Lab hours, and makes extensive use of Lab materials and the students' own texts in other courses. The Lab may offer five credit courses: 106.8 Rhodian for students who need exceptional help preparing for college-level reading; 206.25 Advanced Reading Comprehension; 306.38 Advanced Reading, and 306.40 Practical College Vocabulary. Independent five-week module courses for one semester hour of credit each: and 306.370 Teaching in a Reading Laboratory.

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 and official transcripts. Maintains students in determining graduation requirements, processing applications for degrees, and interpreting college and University academic regulations; provides assistance to students in incorporating selective service and military service matters; and helps student veterans with University application and enrollment procedures, and receipt of Veteran Administrative benefits.

Special Support Services
The Department of Student Support Services (SUSS) was established to make it possible for more students from economically and educationally disadvantaged or basically different backgrounds to receive a higher education at The University of Iowa. Special Student Services provides academic, financial, and personal assistance programs.

Special Support Services is made up of the following subprograms: The Upward Bound Project, the Undergraduate Educational Opportunity Program, New Dimensions in Learning, The Educational Opportunity Professional and Graduate Program; the Asian-American Cultural Center; and the Chicano-Native American Cultural Center.

Speech and Hearing Clinic
This University offers Iowa Speech and Hearing Clinic services, which include diagnostic examinations, consultations, individual clinic sessions, small group sessions and referrals to other clinics as needed.

(S Division) of Sponsored Programs
The Division of Sponsored Programs maintains a Research Center, which contains information on federal and nonfederal sources of funding for study and research projects for faculty and graduate students. Graduate students may inquire about funds for advanced study, work in the United States or abroad. The Division also publishes a weekly newsletter, Research and Graduate News, which contains program and deadline information and carries a special section devoted to graduate fellowships. These newsletters are available at departmental offices; further inquiries about these opportunities are welcome at the Research Center. In some instances, the Center provides direct assistance with application for graduate fellowships, as is the case with graduate fellowships authorized under the Fulbright-Hays Act, with the Tri-Binational Exchange Scholarships, and with dissertation support applications to federal agencies in the United States.

Student Activities
Members of the Student Activities staff work with students who are interested in forming new organizations, encouraging active in existing organizations, or improving the quality of organizations. Student Activities offers consultation assistance in program planning, printing, budgeting, membership recruitment, dance production, group making, group advising, and other aspects of organizational administration. Through the College of Education's Division of Counselor Education, Student Activities offers a three-credit course, 701H Management and Motivation in Organizations and Activities, for leaders and members of student organizations. Student Activities offers mini-courses to
Writing Lab

The Lab offers individual instruction in writing to any university student. Each participating student's own writing is the center of the course for the person. The teacher responds to what each person writes, and, in person and conference, helps him or her identify and overcome particular writing problems.

Any student who believes he or she cannot do the writing expected in the required second course may confer with the director of the Lab about taking individual instruction in writing for credit (109:9 rhizome), before registering for the required course. Non-credit students may enroll throughout the semester.

Women's Resource and Action Center

The Women's Resource and Action Center (WRAC) provides services to meet the academic, vocational, and personal needs of women. Its staff acts as a resource for many women's organizations; sponsors numerous cultural programs, lectures, support groups, and consciousness-raising groups; sponsors a Brown Bag Luncheon program featuring women speakers from the community and the University; and publishes a monthly Women's Resources and Action Center Newsletter. The WRAC houses the Spinning Truth Women's Resource Library, and maintains a three-volume reference catalog. The WRAC's Rape Victim Advocacy program provides a 24-hour telephone service for emergency advice and counseling, is active in preventive education, and maintains information and speaker bureaus.
University residents with less than 36 semester hours of college credit are required, as a condition of University registration, to live in University residence halls, according to students who normally would have completed three years at the college level, or who qualify for specific exemptions. Exemption criteria are outlined in the pedestrian brochure available from the University Housing Assignment Office, Burge Hall. The University of Iowa, Iowa City, Iowa 52242. Exemption requests must be received by the University Housing Assignment Office at least 30 days before the deadline for which the exemption is requested. Exemption request forms are available from the University Housing Assignment Office.

Fair Housing Policy

The following is the University's statement on fair housing practices:

"It is and shall be the firm policy of the University that households staff rent to all housing on the basis of their individual merits, without regard to race, creed, color or national origin."

Iowa City has a local housing ordinance providing for equal opportunity to secure housing without discrimination on the basis of race, creed, color or national origin. In certain instances involving owner-occupied dwelling units, a Human Relations Commission is responsible for the observance of all housing laws and for the initiation of action for violations of law.

University Residence Halls

University residence hall furnishings, facilities and services are designed to provide a pleasant atmosphere conducive to effective study. Single, double, triple and quad rooms with full or partial board are available in the Grand Avenue Residence Halls (west campus), which include Hillcrest, Glidden, Westview, South Quadrangle, Renne and Slater halls, and in the Clinton Street Residence Halls (east campus), which include Burge Hall, Coral Hall, Davis House and Stanley Hall. There are lounges, study rooms, borrowing libraries and recreation rooms in or available to each residence hall.

Each residence hall is divided into small living units. Each hall has a full-time head resident, and there is a student resident assistant in each living unit. All students are encouraged to participate in residence hall government at the unit, building, area, or system level. Student and staff initiated programs and activities provide opportunities to pursue social, recreational, cultural, and educational interests. Academic counseling is also available in residence halls.

Students not living in residence halls may contract for full or partial board.

Juniors, seniors, and graduate students may request residence hall accommodations in areas reserved for them.

Applications and Assignments

Prospective undergraduate students receive with their application for admission a written application for residence hall accommodations. Prospective students applying for residence hall accommodations should read the terms and conditions of the contract, complete all information requested on the application form, sign the contract portion, and return the complete application with their check in the amount of $30 to the University Housing Assignment Office.

Applications for residence hall housing are not considered until the applicant has been admitted to the University. Students are encouraged to choose their own roommates. Prospective roommates must request assignment together when they apply. If both applications are submitted at the same time, the assignment of roommates will not be made until all of the prospective roommates' application materials have been received and both have been admitted to the University. The application last received or the student last admitted determines the date order of
assignment. Roommate assignment is made without regard to race, color, nationality or religion.

Students already living in University residence halls are given priority in the assignment of accommodations.

The residence hall application and $50 advance payment constitute a contract offer. An application may be withdrawn by notifying the University Housing Assignment Office in writing before the application becomes a binding contract. It becomes binding after June 1, if for the academic year, after December 1, if for the second semester only; after May 15, if for the summer session; or ten days after the University Housing Assignment Office receives notice of the acceptance of the contract and assignment of accommodations. If the notice is made within ten days before the beginning of registration, the contract becomes binding two weeks before the beginning of registration.

Upon written request, the $50 advance payment will be 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 1979-80 academic year are $1,438 for a studio room and $1,306 for a triple, with tuition included. Rates for the several available room and board options vary according to the accommodations, and all rates are subject to change annually.

Married Student Housing
There are 799 University-operated apartment accommodations available to married students in the Hawkeye Drive, Hawkeye Court, Hawkeye Park, and Parkview complexes.

Rents for 1979-80 range from $103 to $111 per month for one-bedroom units, $161 to $171 per month for two-bedroom units, and $201 to $211 per month for three-bedroom units, not including gas, electricity, and telephones. All units are unfurnished. Rates are subject to change annually.

Married student housing is assigned in the order applications are received. Assignments are contingent on the applicant's meeting all University admission requirements. Applications may be filed before completion of admission, but will not be accepted more than a year in advance. A $25 advance payment is required for all apartments at the time they are offered for leasing.

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—large apartment complexes, smaller complexes, rooms in private homes, and one, two, and three-bedroom duplexes and houses. The Clearinghouse also assists in finding additional resources to use in looking for housing, and offers a packet of helpful information for prospective residents of the area.

Fraternities
Nineteen undergraduate and six professional fraternity chapters operate chapter houses at Iowa. These houses accommodate 35 to 45 men. Undergraduate fraternities are Acacia, Alpha Epsilon Pi, Beta Theta Pi, Delta Chi, Delta Tau Delta, Delta Upsilon, Kappa Sigma, Lambda Chi Alpha, Phi Delta Theta, Phi Gamma Delta, Phi Kappa Psi, Phi Kappa Sigma, Pi Kappa Alpha, Sigma Alpha Epsilon, Sigma Chi, Sigma Nu, Sigma Phi Epsilon, Sigma Pi and Tau Kappa Epsilon.

Professional fraternity chapters include Alpha Delta Pi (dentistry), Alpha Xi Delta (medicine), Delta Gamma (dentistry), Phi Beta Pi (dentistry), Phi Rho Sigma (medicine) and Pi Omega (dentistry).

Sororities
The 14 national sororities active at Iowa are Alpha Chi Omega, Alpha Delta Pi, Alpha Phi, Alpha Xi Delta, Chi Omega, Delta Delta Delta, Delta Gamma, Delta Zeta, Gamma Phi Beta, Kappa Alpha Theta, Kappa Kappa Gamma, Pi Beta Phi and Zeta Tau Alpha.
Financial Aid

All financial assistance available to University of Iowa students from general University sources is administered by the Office of Student Financial Aid. Assistance is provided through scholarships, grants, loans, and part-time job placement. A student seeking assistance must first complete University admission procedures, including the American College Test, and submit a current financial statement through College Scholarship Service, Box 3316, Berkeley, California 94701, or ACT Financial Aid Services, Box 1000, Iowa City, Iowa 52242. When a copy of the parents' statement is received, the Office of Student Financial Aid will supply forms and instructions for applying for aid at Iowa. Only one application is necessary each year for all forms of assistance administered by the Office of Student Financial Aid. Application deadline is February 1.

Eligibility for Scholarships

To qualify for scholarship assistance, an entering freshman must have graduated in the upper 10 percent of his or her high school class or have achieved a 28 or above composite ACT score. Upperclassmen and transfer students must have a 3.00 cumulative grade point average for the total scholarship term, and must maintain at least a 2.75 to continue the scholarship.

Freshman/Transfer Merit Award

Entering students may receive his recognition for having met specific academic criteria. These scholarships are available to entering freshmen eligible for the University of Iowa Honors Program (28 or greater ACT composite and ranking in the upper quarter of their high school graduating class), to freshmen graduating in the upper one percent of their high school class, and to transfers with a 3.25 or greater GPA. The award is $100. No separate application is required. Eligibility is determined from the admission application.

Basic Educational Opportunity Grants

The maximum NVIOG is $1800 minus the amount of other financial contribution. Application is made through either the OBS or ACT financial statement or by obtaining a Basic Grant application form from any high school counselor's office, college financial aid, or public office.

Supplemental Educational Opportunity Grant

Available to a limited number of undergraduate students unable to attend college or university without such assistance. SEOG grants range from $200 to $1500 a year but cannot exceed one-half of the recipient's total assistance. There are no specific academic requirements for an SEOG grant, but the applicant must show academic or creative promise.

National Direct Loan Fund

This is the University's largest source for long-term educational loans. Undergraduate students may borrow up to $1,000 per year and $5,000 overall; graduate students may borrow up to $2,500 a year and $10,000 overall. Applicants must be citizens of permanent residence of the United States. An undergraduate must be in good academic standing and be making normal progress toward a degree. The applicant cannot be in default or delinquent on a previous loan. No interest is charged while the borrower is at least a half-time student. Loans are repayable at three percent interest beginning nine months after the borrower concludes his course of study.

Health Professions Scholarship and Loan Program

Students are eligible to apply for a Health Professions Scholarship and Loan at a school which participates in the program, if the student is a citizen or national of the
U.S. is enrolled or accepted for enrollment as a full-time student pursuing a course of study leading to a degree(s) of doctor of medicine, dentistry, osteopathy, optometry, podiatry, veterinary medicine, or a degree in pharmacy and/or nursing, and is in need of such financial assistance to pursue the course of study. In addition, health professions students must be full-time students and nursing students must be registered at least half-time. Receipt of the loan portion is arranged with the school at the time of graduation or at the time the student ceases to be a full-time student.

Law Enforcement Education Program

This program consists of federalively-funded loans and grants. Loans can be up to $2,200 per year, and grants can be for a maximum of $4,000 per year to be used for actual costs of tuition and books. To be eligible for this loan program, the school must have a course that is at least 15 hours of courses closely related to law enforcement. All participating schools are eligible for grants. The program is available to all-service and law enforcement personnel. A recipient can be either a full- or part-time student. Certification procedures are available with the loan program.

Guaranteed Loans

Undergraduates may borrow a maximum of $2,000 and graduates $5,000 per year. Loans may be repaid through commercial banks, credit unions, schools, and other eligible lending institutions. Repayment begins when the student ceases to be at least a half-time student.

University Loan Funds

Short-term loans of up to $500 are available for school-year expenses. To qualify, the applicant must have at least a 3.0 high school and transfer grade-point average, and a 1.8 University average.

Part-Time Jobs

Most University students who take part-time jobs acquire them through the Office of Student Financial Aid. The most numerous opportunities are in University Food Service and Hospitals. Hours range from 10 to 20 a week; for a beginning student, the University recommends no more than 12 hours per week.

students in the several colleges of the University is available upon request from the Office of Admissions, 101 Calvin Hall.

Work-Study

Part-time work available through the Office of Student Financial Aid is provided under the federal College Work-Study Program, the purpose of which is to expand job opportunities for those who must earn a part of their educational expenses not covered by other assistance. Work-Study employees may work an average of 20 hours a week throughout each academic session. As far as possible, work-study jobs are arranged to give employees work experience relevant to their educational goals.

Scholarships, Fellowships, Assistantships

A separate publication listing scholarships, loans, awards and prizes available to
The University of Iowa has a major role in the preparation of health scientists for Iowa and the nation. In its Health Center are found the academic programs, clinical facilities and service agencies involved in preparing students and practitioners to serve a wide spectrum of human health needs, ranging from basic first aid to the most advanced diagnostic and treatment procedures, and on to the search for enthralling new knowledge, through research. As soon as they have acquired basic knowledge in their fields, health profession students begin to learn by doing, by following the examples and directions set forth by the skilled practitioners who teach as they diagnose, treat, prescribe, operate and otherwise care for patients. Thousands of individuals from the community, state and region receive direct health services through these processes. Thus the University of Iowa Health Center is simultaneously a center of teaching and of service. It is one of the most advanced, comprehensive health science centers in the United States. Many Health Center skills are shared off campus through cooperative programs with other Iowa colleges and community colleges, and through a variety of continuing education programs for health practitioners—many of whom also return to the Iowa campus to update their skills through conferences, seminars and "re-masters" conducted by the University of Iowa health science educators.

Programs, faculties and courses of the colleges of Chemistry, Medicine, Nursing and Pharmacy are listed elsewhere in this Catalog. Other Health Center units and related programs are described below.

University Hospitals and Clinics

Director and assistant in the president for health services:

John N. Coffman,

Associate director: Stephen L. Lowe

School of medicine and dentistry: John H. Beatty, Fred L. Lowe

Assistant director for planning: Gary L. Pfeffer

Assistant to the director for public relations: Richard van de Walt, M.D.

Clinical services: hospice, obstetrics, Dr. Harold C. Samson; pediatrics, Dr. Joseph A. Kaszuba; general medicine, Dr. Margaret E. Preiskel; dermatology, Dr. Harry W. Most; dentistry, Dr. Mark D. Fenech; pathology, Dr. William J. W. van Kemenade; anesthesiology, Dr. Ronald R. Lowne.

By appointment, the University of Iowa Hospital and Clinics is the nation's largest university-owned teaching hospital, and is dedicated to the concept of health science education through delivery of highly sophisticated, tertiary-level care to patients referred to the hospitals by physicians and dentists from throughout Iowa and the region. The institution is the hub of Iowa's health care delivery system in its role as a tertiary care center providing advanced diagnostic and therapeutic services.

University Hospitals and Clinics is the clinical basis of graduate and undergraduate studies for thousands of students in the health disciplines, including medicine, dentistry, nursing, pharmacy, hospital administration, physical therapy, vocational training, pastoral studies and social work.

University Hospitals and Clinics sponsors residency programs in which more than 400 physicians and dentists gain advanced clinical knowledge and skills in the health care specialties they have chosen to pursue. More than 60 other physicians is training at University Hospitals and Clinics are fellows—experienced practitioners who have advanced to subspecialty practice and research.

An integral part of The University of Iowa, University Hospitals and Clinics is governed by the Iowa State Board of Regents. Through the president of The University of Iowa, the Regents delegate the responsibility for the operation of the Hospitals to the director of University Hospitals, who also serves as assistant to the president for health services of the University.

The Hospitals' operational policies are established by the Hospital Advisory Committee, a group comprising the chiefs of
the hospital's clinical services, the hospital director, the dean and an associate dean of the College of Medicine, and two of the large clinical faculty members. The hospital is organized into 12 clinical services, 18 administrative departments, and 47 subspe-
cialty clinics.

Each of the clinical services of University Hospitals is directed by a chief of service who heads the corresponding academic department in the College of Medicine or the College of Dentistry. Each of these clinical areas has its own inpatient and outpatient services and, where available, special diagnostic and treatment units. The Hospital and its clinical programs are fully accredited.

Hospital services and facilities have evolved since the establishment of the University's first hospital school in 1875. In 1888, the state of Iowa opened its own University Hospital, a facility which by 1924 had grown in 240 beds.

Progressive legislation passed by the Iowa General Assembly between 1915 and 1925 recognized the state's responsibility for providing high-quality health care for its citizens and provided impetus for the construction of an 800-bed general hospital that has grown into the present University Hospitals and Clinics.

A study conducted in conjunction with the Hospital's 75th anniversary in 1972 showed that University Hospitals and Clinics had provided health care services to nearly 1,000,000 individuals since the existing facility was opened in 1928. Eighty percent of those patients were patients of 517,000 different Iowa taxpayers more than half of all adults in Iowa families in existence during those years.

Program and staffs of Hospital School of Osteopathic Medicine and Psychiatric Hospital are 'integrated for administration within the University system as a single program. Today there are 1,181 beds within the Hospital complex, accommodating some 40,000 admissions annually. In addition, 31 specialty clinics accommodate another 300,000 ambulatory patients each year. Nearly 15,000 major surgical procedures are performed annually in the Hospital, 20 major operating rooms. Approximately 5,000 infants are delivered every year.

Highly specialized health services—e.g., the burn, heart, cancer treatment, facilities, neuritis, intensive care units—are readily accessible to Iowans who reside in communities without such resources. To facilitate use of these and other specialized services, the Hospital operates a unique patient transportation service, with a fleet of 15 vehicles which travel nearly two million passenger-miles each year transporting 3,800 patients to and from University Hospitals and Clinics.

More than 4,000 Hospital staff members are involved each day in providing professional and support services needed to care for approximately 2,500 patients. The Hospital's clinical staff is comprised of more than 315 faculty physicians and certified and licensed among the 18 clinical services. The Iowa Staff of University Hospitals numbers over 470 resident physicians and dentists. The Hospital Department of Nursing is staffed by 1,020 persons, more than half of whom are professional nurses.

Other Hospital staff members annually provide over 179,000 X-ray examinations and treatments, conduct over two million laboratory tests, fill more than one million prescription orders, render more than 26,000 physical therapy treatments and prepare nearly 37,000 food and component formulations.

New intensive care, cardiology and urology units have resulted from recent modernization efforts. A seven-story, 2,515,000 square foot Tower Addition went into service in 1976, providing expanded and replacement facilities for available and new patient and outpatient services. The new $20 million Roy J. Carver Pavilion, named in honor of a $2 million gift from the Carver Charitable Trust, provides replacement facilities for a multi-specialty inpatient and emergency treatment center, medical therapy department, preoperative and outpatient clinic, and faculty offices, and 148 beds to replace outpatient facilities in Children's Hospital and Clinics Hospital.

University Hospitals and Clinics also collaborate in conductingSplit-accredited health professional education programs: a "nine-month Dietetic Internship Program; two-year Radiology Technology and Nuclear Medicine Technology and Nuclear Medicine Technology programs, a two-year Physician's Assistant Program; a two-year Hospital Pharmacy Residency Program; a two-year Physician Therapy Program; and in conjunction with Mercy Hospital in Davenport.

Monami's a three-year Cytotechnology Trainee Program.

The University Hospitals and Clinics also provide a clinical setting where students in four health education programs offered by Morningside Community College in Cedar Rapids are provided supervised opportunities to apply and integrate knowledge, attitudes and skills learned in the classroom. These programs are one- and two-year courses in Nursing Education; a two-year Orthopaedic Physician's Assistant Program; a one-year Operating Room Technician Program; and a two-year Respiratory Therapy Program.

The Bureau of Dental Health Education

The Bureau of Dental Health Education is sponsored by the Iowa Board of Health, which provides personnel, salaries, and office supplies, and the University, which provides space and equipment.

The Bureau's primary purpose is to provide a program of dental health education and disease prevention in the public and parochial schools of the state. Supervisory dental hygiene students from the University conduct "Dent" programs with the Public Dental Health Hygienists of the Iowa State Department of Health. These programs include instruction in oral hygiene, good dental health practices, and nutrition as related to dental health. A weekly fluoride rinses is started as a decaying prevention which is continued for the remainder of the year. Dental referral cards are also made available to schools to remind parents of the need for regular dental care for children.

Council on Speech Pathology and Audiology

The Council on Speech Pathology and Audiology offers instruction in speech pathology and audiology offered in the University of Iowa and the Veterans Administration Hospital.

Health Occupations Education

Through this program, the University collaborates with the State Department of Public Instruction in providing consulting and advisory services, educating teachers, conducting research and developing cur-
route and instructional material for health occupations programs conducive to the goal by Iowa's 15 area community colleges, but also including a growing number of high schools. The Health Occupations Education staff also assists these institutions in staffing and conducting continuing education efforts, enrolling nearly 69,500 registrants in more than 3,400 courses each year.

Health Sciences Library

The Health Sciences Library serves the combined information and research needs of the college of Dentistry, Medicine, Nursing, and Pharmacy, and the Department of Speech Pathology and Audiology. The largest of the department's in the university library system, the Health Sciences Library contains over 150,000 volumes and receives more than 2,700 periodicals. In addition, it provides ample space for these collections, the interior allows for enough reading and study space to accommodate approximately 1,100 people. Special features of the library range from computerized access to the latest health sciences literature via MEDLINE and other titles based on the rare books (some dating back to the 15th century) in the John Martin Rare Book Room.

Health Services Research Center

Organized to foster research, education, and demonstration projects relevant to the health needs of non-Anglo-American areas, the Center consists of a multidisciplinary core of scholars drawn from the Colleges of Medicine, Dentistry, Nursing, Pharmacy, Education, Engineering, Business Administration, several social science departments in the College of Liberal Arts, University Hospitals and Clinics, and the Veterans Administration Hospital. These individuals have a mutual interest in improving the health services delivery system in Iowa, the Midwest, and the nation as a whole.

Iowa Mental Health Authority

Authorized by Congress under Public Law 70-407 in 1946, the Iowa Mental Health Authority is a state agency affiliated with the University of Iowa College of Medicine and located at the University of Iowa Oakdale Campus. The major function of the Authority is to provide state-wide leadership for Iowa's 32 community mental health centers, which are private nonprofit corporations. The Authority provides consultation, staff development, consultation in management, standards development and evaluation, and research in support of services for these centers. The Authority cooperates with communities in developing local programs, pursues liaison and referral activities with other local, state, and federal programs in mental health delivery system, and provides consultation on federal mental health construction and staffing grants through the National Institute of Mental Health.

Oakdale Campus

Located seven miles northwest of the Health Center, the 325-acre Oakdale campus includes an alcoholism treatment unit, the psychology and pediatrics research laboratories, the Institute of Agricultural Medicine, research animal-care facilities, a Model Clinic for Family Practice, a Model Rural Health Center and University House, which provides facilities and support for faculty research and curriculum development. Among the several policy think tanks convened at University House are the Health Services Research Center, Gerontology Center, and the Institute of Child Behavior and Development.

Psychiatric Hospital

Part of the University Hospitals system, the Psychiatric Hospital contains diagnostic and research laboratories in neuropsychiatry, biopsychology and psychology. The electroencephalographic laboratories serve the entire University of Iowa Health Center.

State Hygienic Laboratory

Laboratory staff members perform a variety of diagnostic, surveillance, training and consulting functions in such areas as bacteriology, parasitology, industrial hygiene, serology, virology, health physics, pollution chemistry, radiation safety, and air pollution, serving waste analysis, pesticides and herbicides, toxicology, mineral analysis and disease surveillance. The laboratory provides virological and bacteriological diagnostic services for University Hospitals and Clinics and for the U of I Student Health Service.

State Services for Crippled Children

Crippled children's services are supported by federal reorganizations through the United States Asymmetry of Health and Education. Education and Welfare and by state appropriations through the University Hospitals, State Services for Crippled Children (SSCC) provides a state-wide program of services for Iowa persons under the age of 21 with special health problems and multiple handicaps. Diagnostic and evaluation services are offered as child health clinics conducted annually in communities throughout the state and at clinics of the University of Iowa Hospitals. Medicine examiners at the clinics are staff members in the departments of Pediatrics, Orthopaedic Surgery and Ophthalmology. Diagnostic services are also provided in the areas of speech pathology, audiology, psychology, dental hygiene, and occupational therapy. Patient service staff members assist the children's families in making arrangements to obtain the care and treatment recommended at clinics and monitor their implementation. At the local level, SSCC maintains regional office and facilities and participates in the development of community child health centers.

The agency conducts research on health problems related to handicaps, such as malnutrition, diabetes, mental retardation, phenylketonuria, and high-risk conditions of the newborn.

SSCC is also a University of Iowa graduate training program in audiology and speech pathology and its clinics are sites for the Department of Pediatrics.

University Hospital School

A University Affiliated Program dealing with the problems of developmentally disabled children and young adults, the Hospital School serves as the focus of activity for the Division of Developmental Disabilities within the Department of Public Health. It is an integral part of the tertiary level health services available through University Hospitals and Clinics.

This interdisciplinary team approach provides services involving the fields of medicine, dentistry, nursing, nutrition, social work, and occupational therapy, activity and music therapy, psychology, social work, special
education, physical education, pre-vocational and vocational activities.

Through general and specific diagnostic clinics, individuals are evaluated, and programs of education and therapy are planned in conjunction with the pupil, the Avon Education Agency, and the local school district.

The residential program provides a variety of educational and therapeutic services for children who are judged to require services not available in the local community. The goal of the program is to return the children as quickly as possible to their home communities and schools.

The day program provides special education, therapy and functional training for selected children and young adults who are mentally retarded and who reside in the Iowa City area.

Training activities include pre- and in-service lectures, workshops, paid on-the-job training and seminars for a variety of care providers working in other facilities or community programs. These activities take place in the University and community setting.

Close cooperation exists with the state Developmental Disabilities Council and other state agencies in providing training and technical assistance to their programs.

The Child Development Clinic, serving the learning-disabled child, the socially disruptive child and family, and the child with selected metabolic disorders, is an active component of the Division.

The laboratories of the Division of Genetics and Biochemistry are also housed in the University Hospital and are utilized extensively in its research, training and service programs.

University Speech and Hearing Clinic

Located in the Wendell Johnson Speech and Hearing Center, the Speech and Hearing Clinic provides training for students of the Department of Speech Pathology and Audiology. In addition to audiological and speech pathology, the staff includes a psychologist, and evaluations and consultations by physicians and other health care professionals can be arranged when appropriate.

The clinic provides out-clinic evaluation and consultation services for individuals with speech, language, hearing and/or reading problems.

The Veterans Administration Hospital

Medical students and residents receive much of their clinical training at this 350-bed hospital, in which are based several of the major facilities of the U of I Health Center. These include laboratories for the transplantation program, highly specialized laboratories in nuclear medicine, and special units for the study of metabolic and gastrointestinal diseases. The VA Hospital also offers unique training opportunities in the fields of clinical pharmacology, gastroenterology, cardiology, nephrology and applied immunology.
Research Activities

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

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

The Office of the Vice-President for 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 mission 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 ten faculty members, with whom is recognized personal involvement in basic research or creative activity, one representative of the University staff, and two student members. Faculty members include two each from the physical, biological and social sciences and the humanities, and two from the faculty at large. The Council gives regular consideration to such matters as the establishment or general policies with respect to the University's research and creative efforts, the review of proposals and procedures concerned with securing and allocating funds for support of research and creative activity, and additional matters relating to the general research and creative functions of the University and the health of basic scholarship on the campus.

Programs

With the advice of the University Research Council and other appropriately involved officers and committees of the University, the Office of the Vice-President for 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 (other than those in the colleges of Medicine and Dentistry) who wish to do health-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 which will assist the faculty member in conducting an initial exploration of a hypothesis which he or she believes may lead to the development of a full-fledged program of research.

Incidental Grants

Limited funds are also available in the Office of the Vice-President for Educational Development and Research for small grants to faculty members to cover the costs of materials, supplies, equipment, proposal writing, grants and related assistance for specific research projects for faculty travel related to specific research projects or for the purpose of acquiring skills, knowledge or techniques which will enhance research at the University, and for honoraria and expenses in 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:
Computing Center

The Gerard J. Weeg Computing Center provides resources for computing facilities to all students, faculty, and staff of the University. The Center maintains a systems capability of 5000 workstations, as well as providing access to off-campus facilities by way of network connections. User access to these facilities is provided by a large number of terminals, both batch and interactive, conveniently distributed throughout the campus.

The Center provides education and creative services, compatible with its mission, to assist the users in their computing activities. Although the Center is an entity distinct from the Computer Sciences Department, there is an interchange of students, faculty, and ideas between the two staffs.

Institute of Child Behavior and Development

The Institute advises students on programs of study and assists in the coordination of courses in areas related to children. The institute faculty, which is composed of the colleagues to contact regarding innovative training programs or interdisciplinary research projects, is related to the needs of the students.

The Institute is part of the University of Pennsylvania.

Division of Sponsored Programs

This office maintains a research center at the University of Pennsylvania where the staff is available to assist in the preparation of research proposals, as well as the administration of the budgets. Staff are available to assist in the preparation of budget and subcontracts, and to give editorial assistance in the preparation of applications.

Center for Research on the Psychosocial Disorders of Children

The Center for Research on the Psychosocial Disorders of Children is a research center located within the Department of Pediatrics. The Center is dedicated to the study of the psychosocial aspects of children's disorders and the development of effective treatments for these disorders.

Scanning Electron Microscope Laboratory

The Laboratory was established in 1987 to provide facilities and technical assistance to research programs involving the use of a scanning electron microscope. The Laboratory is equipped with a Cambridge Stereoscan S4 having a resolution of 150 angstroms and a useful magnification range of 20 to 50,000 diameters. In 1974, the scanning electron microscope was modified to improve performance by the addition of a tungsten filament and a pressure chamber.

Center for Research in Interpersonal Behavior

See "Psychology" in "College of Liberal Arts."
Institute of Public Affairs
The mission of the Institute is to improve state and local government and administration in Iowa. To fulfill this mission, the research and publication activities of the Institute seek to promote the health of and appreciation for their governments, help public officials better understand their roles and responsibilities, assist governments in their personnel development activities, and help public officials and citizens in their efforts to implement change. (See "Division of Continuing Education.")

Institute of Urban and Regional Research
Primary objectives of the Institute are to broaden knowledge in the areas of urban and regional studies, to enrich the teaching programs in participating departments, and to initiate and carry out interdisciplinary research projects. Through the acquisition of grants and contracts and other off-campus activities, the Institute pursues these goals and provides an interface between faculty and students and their related discipline orientations in both basic and applied urban and regional research activities. The Institute is part of University House.

Industrial Relations Institute
See "College of Business Administration."

Institute of Agricultural Medicine and Environmental Health
The Institute of Agricultural Medicine and Environmental Health, housed in the Agricultural Medicine Research Faculty on the Oakdale Campus, is a part of the Department of Preventive Medicine and Environmental Health, College of Medicine. Research, teaching and extension activities are centered on the broad health problems of those who live in rural Iowa. Areas of study include environmental toxicology, comparative medicine, occupational health, the Accident Prevention Laboratory and the Iowa Pesticides Epidemiology Studies Center.

Institute of Hydraulic Research
See "College of Engineering."

Iowa Urban Community Research Center
The Iowa Urban Community Research Center was established in 1958 as a permanent interdisciplinary research and training agency. Its research has been disseminated in scholarly journals and in a biennial series and a monograph series. The Center's community surveys are on tape in its data bank and are readily available for secondary analysis by graduate students and faculty. The staff is currently engaged in a study of the relationship between juvenile delinquency and adult criminal careers in an industrial community.

Laboratory for Political Research
The Laboratory for Political Research is a research and training facility housed in the Department of Political Science. It provides technical assistance to faculty members, graduate and undergraduate students, and staff members engaged in research. This assistance includes both the data collection and analysis phases of research. The Laboratory serves the entire University community, regional schools in Iowa and Illinois, and public agencies at the local and state levels. It is involved in graduate education, directly training students to utilize the computer in their own research. It also provides empirical data which can be used in graduate courses and seminars, and supports a large number of computer programs which can be used for data analysis. For undergraduate education, the Laboratory works with professors in developing curriculum materials which utilize empirical data and the computer for instructional purposes. The Laboratory has developed a number of computer-based curriculum packages. These instructional packages are in use at more than 50 institutions in the United States and Canada.

Management Center
See "College of Business Administration."

Radiation Research Laboratory (Radiation Biology)
See "College of Medicine."
Toxicology Center

The Iowa Center for Toxicology and Biochemical Pharmacology is an integral part of the Department of Pharmacology and is devoted to research in biochemical toxicology and pharmacology. Broadly, these include research on the disposition of drugs and poisons, their metabolic fate, the biological adequacy and regulation associated with their use, studies on their toxicologic and toxic effects and their mechanism of action at the molecular level. Doctoral degrees in pharmacology are granted.

Social Science Data Archive

The Social Science Data Archive is a library of machine-readable data which can be analyzed by faculty and students in their research and training. Approximately 800 studies are now included in the Archive, covering most of the social science disciplines. Individuals seeking assistance in utilizing the data of the Archive can call or visit the staff at the Laboratory for Political Research.

University House

University House began in 1977 as a program dedicated to three separate but related missions. The first and most important is faculty development in general. To help faculty in their professional growth and advancement, University House provides on the Oakdale campus an environment, free from the usual distractions, in which faculty members can work—alone and together—on scholarly tasks in a congenial, supportive setting. It is also a place in which scholars from different disciplines can meet in easy interchange for mutual benefit.

As one means to foster these ends, University House sponsors many public lectures and conferences, visits by distinguished faculty from other campuses, and faculty seminars on a wide variety of topics. Faculty members in all disciplines are eligible for appointment and for participation in University House activities. Thanks to a large grant, University House is also able to support research and other educational development activities jointly pursued by faculty members from the University and from the independent, four-year colleges of Iowa.

In addition to promoting faculty development in general, University House is also a program which seeks to bring together university centers, institutes, committees, and other groups into consortia, interdisciplinary arrangements that foster the acquisition of external support for research, education, and appropriate services.

A second role for University House is to assist the Office of the Vice-President for Educational Development and Research in its efforts to serve as a broker in important joint-research efforts that serve the public policy concerns of the state government and the people of Iowa. University House has nearly 8,000 square feet of newly furnished space in the Oakdale Hospital, including private faculty offices, several conference and project rooms, and a lounge. Secretarial services are available. Located in the same building are a cafe, a large conference room, a copy center, a batch terminal connected to the Wang Computing Center, a terminal with word-processing capabilities, and a full-time assistant for computer services. Photocopying and book delivery services from University Libraries are also available. Half-hour campus service connects University House with the main campus.
Iowa Center for the Arts

Located along the west bank of the Iowa River, 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 comprises many of the academic units of the Division of Fine Arts in the College of Liberal Arts, together with the Museum of Art, E.C. Malott Theatre, Clapp Reception Hall and Harper Hall in the School of Music, and Hancher Auditorium, the Center’s newest and largest showcase.

Hancher Auditorium

Virgil M. Hancher Auditorium is one of the nation’s finest facilities for a full range of programs in music, dance, and theater. Although its 2,684 seats make it one of the United States’ largest modern theaters, its design, coordinating functional with individual excellence, achieves unusual intimacy. The Auditorium is named after Virgil M. Hancher, president of the University 1940-64.

Museum of Art

Impetus for the construction of the University’s Museum of Art came from Owen and Lewis Elliott, who offered their superb art collection to the University. Opened in 1949, the Museum is located immediately north of the School of Art and Art History in the Center for the Arts complex along the west bank of the Iowa River. The Museum provides an architecturally unique setting for the widely representative works of the Elliott collection and the University’s permanent collection, and for important touring exhibitions. Addition of the Carver Galleria in 1976 significantly increased the Museum’s display capacity.

Museum of Natural History

To meet the needs of the general public and the various departments of the University, the Museum provides a repository and the proper care for specimens which come to the University either by gift or through the efforts of its own collection. It designs and executes new exhibits of educational value and offers instruction in the corrective and technical phases of exhibit preparation and the general operational procedures of small science museums.

Habitat exhibits of North American mammals include the American bison, the antelope, the mountain lion, the American moose and the beaver.

A large and well-known bird habitat exhibit is the Laysan Island Cypornis. This is a complete representation of a bird island of the Hawaiian group. Other habitat exhibits include the Bering Sea, the Louisiana Swamp, the Fall Migration, and Cenozoic on South Dakota Prairie. The crane exhibit includes both the sandhill crane and the rare whooping crane, as they appear on the prairie during migration.

The major invertebrate phyla are represented in several exhibits and include such familiar groups as the arthropods, mollusks, echinoderms and coelenterates.

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

Several displays are related to the geology of Iowa and include typical fossil specimens.

Office of International Education and Services (OIRES)

The OIRES is the focal point for University international education activities. It works in the areas of international studies, international educational exchange and technical assistance.

The OIRES aims to promote the development of and cooperation among the various aspects of international studies — foreign languages and area studies, comparative and topical studies, and foreign language
University Relations

The Office of University Relations seeks to foster understanding of participation in, and support of University aims and activities through effective two-way communication within the University community and between the University and its key publics. The Office has management responsibility for the Office of Public Information, the Department of Publications and Printing Service, and The University of Iowa Press. In addition, the Office of University Relations seeks to maintain an efficient information program through use of internal and external media, and provides liaison between the central administration and appropriate University and governmental groups. University Relations publishes the U of I Spectrum, Faculty and Staff Newsletter (FSC), Campus Correspondent, Calendar of Events, and Programmes; provides campus tours and other services for University visitors and guests; provides copy and photos for some University publications, and serves as the executive Office of the Parents Association.

Public Information

The Office of Public Information includes Humanities/Science News Service, Health Center Information and Communication, Men’s Sports Information, Women’s Sports Relations, Art Center Relations, and Broadcast News Services. These units supply news, photos and information to print and electronic media, gather and prepare informative material for special and general interest periods, help prepare special University publications, answer requests for information and assist writers, photograph and broadcast those who visit the campus.

Publications and Printing Service

The Department is responsible for providing services to meet official printing and publications needs of the University. The Publications staff provides assistance to departments and campus organizations in planning, writing, editing, and designing publications. Printing Service is the production agency of the Department, with a printing plant and bindery. Several Copy Centers located strategically about the campus provide quick, inexpensive reproduction service. The Department also operates Campus Studios, an on-campus distribution agency which sells manuals, lab notepads, and other special instructional materials used by the faculty. The Department is responsible for ensuring University conformity with the printing laws of Iowa, including provision for obtaining competitive bids on printing not done in the University Printing Service.

University Press

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

Reading Clinic

The Children’s Reading Clinic in the University of Iowa College of Education trains classroom teachers, supervisors and consultants, school psychologists and counselors to assess the reading abilities of school-age children, and to recommend and use instructional materials which are suited to their needs and interests.

The Clinic teaching program includes practical in Iowa city schools and in an on-campus center during the academic year. During the summer the Clinic is in Wascahd Johnson House and Reading Clinic where the staff provides reading instruction for children who attend the Summer Residential Program for therapy in speech, hearing and reading. All the teaching that is under the auspices of the Children’s Reading Clinic is done by student clinicians under the close supervision of Clinic staff members.

Recreational Services

The Division of Recreational Services administers a program of more than 20 intramural sports and recreational activities for all international students; offers a wide range of recreational lesson programs in such activities as karate, tennis, golf, yoga, archery, judo and gymnastics; and provides informal activities for students, faculty and staff members, and their spouses and families. Activities include basketball, badminton, volleyball, table tennis, swimming, handball, pickleball, squash, canoeing, golf, archery, weight
and salary and fringe benefit administration for full-time and part-time, permanent and temporary, nonteaching and nonstudent employees of the University. The University Personnel Office is responsible for the administration of the Board of Regents Merit System and the Unemployment Compensation Act. It also participates in certain aspects of the academic personnel program and in payroll recordkeeping and collecting personal record data for both faculty and staff employees.
General Facilities

The University's Main Library and its 12 departmental libraries contain approximately 2.1 million volumes. About two-thirds of this collection is in the Main Library.

The Art I - I - I contains approximately 7,000 volumes, Botany-Chemistry, 56,000; Business Administration, 15,600; Education-Psychology, 11,800; Engineering, 43,350; Geology, 25,500; Health Sciences, 146,748; Library Science, 9,300; Mathematics, 28,500; Music, 53,400; Physics, 29,100; and Zoology, 25,150.

The Law Library, which is administered by the College of Law, contains 293,500 volumes.

Special Resources

Main Library facilities include microform reading rooms; waiting rooms for collections of recorded drama, poetry, and speeches; seminar and conference rooms; a map center; carrels for graduate students; and individual study rooms for faculty members engaged in research. Other services include the reserved book stations for undergraduate students in the Burge and Hekinset residence halls.

The Human Relations Area Files contain full data on a sample of societies throughout the world, and are being utilized to facilitate comparative studies of social and cultural behavior.

The Lehigh Hunt Collection, brought together by Luther A. Beerman, Director of Shipboard Expeditions, and Lehigh University Libraries, is considered one of the most complete in existence. It contains nearly 2,000 manuscripts and manuscript letters written by Hunt or to him by many famous literary friends, 150 association volumes, and 600 editions of Hunt's writings.

The Mark Ramsey Memorial Collection of approximately 3,700 volumes is particularly rich in deluxe editions, including many superb bindings made especially for Mrs. Ramsey.

The French Revolution Collection includes more than 8,000 French pamphlets, chiefly from the years 1768-1799, supplemented by numerous French newspapers and government publications of the period.

The John Springer Collection on typography, given to the University by a long-time Iowa City printer, includes 1,850 volumes of type specimens, books important in printing history, and volumes illustrating the art and progress of printing through the centuries.

The "Ding" Darling Collection comprises originals of nearly 6,000 caricatures in which for more than 40 years Ding recorded and commented on the economic, political, and diplomatic affairs of the United States. His caricatures are virtually a pictorial history of this country during the first half of the 20th century. A subject index to the collection enhances its usefulness for reference and research.

The Bolling-Lincoln Collection, gathered by Judge James W. Bollinger of Davenport, is one of the best libraries of Lincolniana in the United States. A number of items in it concern John Wilkes Booth and the trial of his fellow conspirators. Another large group contains reminiscences of people who knew Lincoln. Later, broader, and related to Iowa and the Civil War Period have been added. The "U" Collection is a gathering of early, rare, or unusual works on diverse subjects, including books of the 16th and 17th centuries, early Americanica, Rosicrucian Publications, private press books, and selected modern first editions.

The Manuscript Collection includes more than 6,800 individually catalogued vellum or manuscript items of English and American authors or historical figures, principally of the 19th and 20th centuries. In addition to 365 inventorial collections of papers, diaries, and correspondence files relating to midwestern economic, political, and agricultural history. Other special collections include the Harvey L. Ingleson Collection of books dealing with the American Indians; the Levi C. Leonard Collection of manuscripts and documents dealing with recording in the Midwest; the History of Hydraulics Collection: the Edwin E. Fred Pipe Collection of ballots and follogica of the Chautauqua Collection, which contains several thousand letters and
business documents descriptive of the Chaucerian movement; the Blunden Collection of poetry, biography and criticism, manuscripts, and letters relating to the contemporary English poet, Edmund Blunden; the Iowe Authors Collection; the Map Collection, containing more than 165,000 maps and indexed aerial photographs and nearly 2,500 atlases, gazetteers, and related reference items; and the University Archives.
People have many reasons for going to college. Some have specific careers in mind, while others are looking for guidance in seeking careers. Most expect that college will help prepare them for a wide variety of employment, social, and personal development in their lives.

A liberal arts education is intended to ready students for effective performance in many situations over the course of their lives after graduation. It includes both preparation in specialties and a broad exposure to other areas of learning. Through the wide study of literature and language, mathematics, the physical, biological and social sciences, and the arts, students may gain a general understanding of the many types of situations and people they will meet after leaving college. Although this education often incurs sound preparation for specific jobs, it also nourishes career flexibility by giving students broad bases for responding to changing employment opportunities. As a result, the danger that a graduate may become "locked" into a single unsatisfactory job is reduced.

The kind of flexibility and adaptability mentioned here are built upon an understanding of other cultures and languages, the social and political institutions in American society, communication behavior, and the physical and biological world about us. A liberal arts education includes something called a "general education" because students receive general preparation for the opportunities and problems they will encounter throughout their lives. This approach to education assumes that because we cannot now foresee all of these opportunities and problems, students are better prepared for the future if they have learned and developed abilities, awareness, sensibilities, and knowledge which will help them generate responses to unexpected events. The College of Liberal Arts attempts to provide this versatility by its combination of major and general educational requirements.

Schools and Divisions

There are seven schools and two divisions in the College of Liberal Arts. The Division of Fine Arts includes the School of Art and Art History, the School of Music and the Department of Speech and Dramatic Art. The Division of Mathematical Sciences includes the departments of Computer Science, Mathematics and Statistics. The School of Letters is a federation of the departments of Classics, East Asian Languages and Literature, English, French and Italian, German, Linguistics, Russian, Spanish and Portuguese, and Speech and Dramatic Art; the programs in Afro-American Studies, American Civilization, Comparative Literature and Modern Letters, the International Writing, Translation and Writers Workshop; and the Windhover Press. There are also schools of Journalism, Library Science, Religion, and Social Work.

Degrees Offered in the College

Degrees offered: B.A., B.G.S., B.F.A., B.M., B.G.S., B.L.S.

The College of Liberal Arts confers degrees in the following major fields:

- Ancient Civilizations—B.A.
- Anthropology—B.A.
- Asian Studies—B.A., B.F.A.
- Asian Studies—B.A.
- Behavioral Science—B.A., B.G.S.
- Chemistry—B.A., B.B.
- Classics—B.A.
- Communication Studies—B.A.
- Computer Science—B.A., B.G.S.
- Dance—B.A.
- Drama—B.A.
- Drama and Dance Education—B.A., B.G.S.
- East Asian Languages and Cultures—B.A.
- Economics—B.A., B.G.S.
- English—B.A.
- Environmental Education—B.A., B.G.S.
- Environmental Education—B.A., B.G.S.
- General Science—B.A., B.G.S.
- Geography—B.A., B.G.S.
- German—B.A., B.G.S.
- German—B.A.
- Health Communication Education—B.S.
- Hebrew—B.A., B.G.S.
- History—B.A., B.G.S.
- Japanese—B.A., B.G.S.
- Journalism—B.A., B.G.S.
- Latin—B.A.
- Letters—B.A.
- Linguistics—B.A.
- Literature and the Arts—B.A.
- Mathematical Sciences—B.A., B.G.S.
- Music—B.A., B.G.S.
- Music—B.A., B.M.

Academic Affairs staff: Assistant dean Howard Laster
Associate dean and director of the Academic Office: Hugh E. Kilgo
Associate dean and director of the Academic Office: Howard D. Trull
Assistant dean Nancy Mays
Assistant director of Human Resources: Daphne Dana
Associate director of Dean J. Richard Wilmeth
Basic Program

Except for the degrees Bachelor of General Studies and Bachelor of Liberal Studies, the basic program for baccalaureate graduation from the College of Liberal Arts consists of:

General Requirements

- Core areas
  - Historical-cultural
  - Literature
  - Natural science
  - Social science

- Foreign language
- Mathematics
- Physical education skills
- Rhetoric

Area of Concentration (major)

Electives

Typically, the student takes about one-third of his or her coursework in each of the three groups—general requirements, major requirements, and electives—focusing on the general requirements the first two years and on the area of concentration during the junior and senior years. The general requirements, and methods of meeting them are explained in detail at the end of this section.

Bachelor of General Studies

The program leading to the Bachelor of General Studies degree provides for broad flexibility, rather than the traditional single major. Of the general requirements listed above, only the rhetoric skills requirement (one semester) applies to the General Studies program. For the General Studies degree, the student must earn at least 45 semester hours of credit in University of Iowa courses numbered above 99, and must achieve at least a 2.0 grade-point average in all these courses. No more than 30-100-level credits earned in one department can be applied toward the 45-credit requirement, and no more than 40 credits total earned in one department can be applied toward graduation.

Bachelor of Liberal Studies

The B.L.S. program is designed to serve adults who cannot attend the 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 can be applied toward the degree, as well as applicable courses taken from any of the three Iowa Regents universities. Types of courses available from the Regents universities include correspondence courses; radio, television and newspaper courses; Saturday and evening courses; extension courses including those with new distance-learning formats; and regular on-campus and daytime courses. Students may also take proficiency examinations.

To be eligible for admission to the program the student must have earned either an Associate in Arts (A.A.) or Associate in Science (A.S.) degree from an accredited institution or 62 semester hours of collegiate work acceptable for credit toward graduation. The student must satisfy the College's basic skills and core course requirements; holders of the A.A. or A.S. degrees will have already met these 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-division where the credits were earned (in the College of Liberal Arts, courses numbered 100 and above); 45 must be completed in courses offered by the Iowa Regents universities; and 30 must be earned after admission to the B.L.S. program in the specific Regents university which 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. In addition, must earn at least 12 semester hours (or 18 quarter hours) of credit in each of three of the following areas:

- Humanities
- Communications and arts
- Natural sciences and mathematical disciplines

Social Sciences

Professional fields, as approved by the degree-granting institution.

Graduation requires a minimum grade-point average of 2.0 in all coursework applied toward the degree, in all coursework completed after admission to the program, and in all upper-level coursework. While the B.L.S. is awarded by the College of Liberal Arts, the program is administered by the Division of Continuing Education.

Address inquiries to: Credit Programs, W400 East Hall.

Two or More Bachelor's Degrees

Students who have already received a bachelor's degree and wish to qualify for an additional bachelor's degree must meet requirements for the second degree and complete at least 30 additional hours of study in residence in the College of Liberal Arts beyond the first degree.

Double Majors

Students may meet the major requirements in more than one department and in both departments award the same degree the student may earn a bachelor's degree with double majors, e.g., B.A. in History and English; B.S. in Psychology and Sociology. No double majors can be earned between colleges of the University.

Credit Requirements

Graduation from any College of Liberal Arts baccalaureate program requires a minimum of 124 semester hours of college credit, of which at least 90, or the last 30 consecutive, or 45 of the last 60, must be earned in residence in the College.
Maximum Credit in One Department
No more than 50 semester hours of credit earned in one department may be applied toward College requirements for the Bachelor of Arts or Bachelor of Science degrees.

Transfer Credit Limit
After a student has earned 82 semester hours of college credit from all sources, no more credit can be accepted by transfer from a two-year college toward the 124 semester hours needed for graduation from the College of Liberal Arts.

Correspondence Credits
No more than 30 semester hours of credit earned in correspondence courses may be applied toward College requirements for baccalaureate graduation.

Classification
Freshman: less than 28 semester hours earned
Sophomore: 28 through 55 semester hours earned
Junior: 56 through 89 semester hours earned
Senior: more than 89 semester hours earned

Semester Load Limit
The normal schedule is 15-16 semester hours for a semester, eight for a summer session. No student may register for more than 20 semester hours in one semester, or 10 in a summer session, without the permission of the Liberal Arts Advisory Office.

Academic Standards

Marking System
The College uses the 4-point marking system, with grade points awarded on a scale descending from A=4. For a full description, see the General Information Section of the Catalog.

Grade-Point Requirements for Graduation
Baccalaureate graduation from the College generally requires at least a 2.0 grade average (1) on all college-level work attempted, (2) all work attempted at the University, (3) all work attempted in the major field, and (4) all work in the major field at the University.

A student who does not meet the requirements in (1) but who does have a cumulative grade-point average of at least 1.9 on all college work attempted and on all work attempted at The University of Iowa, and a 2.0 in the major field and at the University, may satisfy the requirement by earning sufficient grade points to equal or exceed a figure obtained by multiplying by two the number of hours required for graduation at the time of entrance.

The cumulative grade-point average is computed as follows: (1) multiply hours of credit in each course by the appropriate grade points; (2) total the grade points earned to date; (3) divide the sum in (2) by the number of hours undertaken, excluding courses in which grades of "W" or "P" are given. Grades of "F" are included in hours attempted and are used in computing the grade-point average.

Good Standing
Minimum University of Iowa and overall cumulative grade-point averages required for good standing in the College are 3.0 for freshmen, 3.5 for sophomores, 3.75 for juniors, and 3.9 for seniors.

Pass-Fail Option
All students in the College have the option of taking courses on a pass-fail basis.

The student must have the consent of his or her faculty advisor and the course instructor, and must file a completed pass-fail card either during registration or at the Registrar's Office before the end of the third week of classes (second week in a summer session).

The student may apply no more than 16 semester hours of "pass" credit towards the bachelor's degree, and may earn this credit only in elective and/or elective courses.

A student may not take courses in his or her major department on a pass-fail basis, but courses required for the major in cognate or related areas may be taken on a Pass/Fail basis, if available, at the discretion of the major department.

A student may register for only two Pass/Fail courses per semester and/or summer session.

For transfer students with more than 55 semester hours of transfer credit, the "pass" credit limit is eight.

"Fail" grades in pass-fail courses are included in the computation of grade-point averages.

Satisfactory-Fail Courses
Certain courses are offered only on a satisfactory-fail basis. All students in such courses are graded this way. No more than 16 semester hours of credit earned in such courses may be applied toward graduation.

A student may take satisfactory-fail courses in his or her major department. No special form is required for satisfactory-fail registration. "Fail" grades in satisfactory-fail courses are included in the computation of grade-point averages.

Auditing Courses
Students in the College of Liberal Arts may register for two audit (aud) with the permission of the Instructor and the advisor. The mark of "A" (registered) is assigned to those registered for zero credit if attendance and performance are satisfactory. If unsatisfactory, the mark of "W" (withdrawn) is assigned. Courses completed with a mark of "A" do not meet any graduation requirements. The last semester hours credit for the course will be used in assessing tuition fees.

Second-Grade-Only Option
Unless obvious progression is involved, a student may repeat a University course and have only the second grade and credit included in computation of the grade-point average. A student who wishes to utilize the provisions of this rule should come to the Liberal Arts Advisory Office to complete the necessary form.
Incompletel and No Report

A mark of "I" (incomplete) or "F" (no report) which is not replaced by a final grade prior to the announced deadline within the student's next regular semester of registration will be replaced by a final grade of "F," except that students with incompletes from the spring semester and exempt from completing the courses during the succeeding summer session.

Readmission After Academic Dismissal

A student dropped from the College for the first time for failure to meet academic requirements may apply for readmission after one year. A student dropped for a second time may not apply for readmission until five years later.

Recognition for Academic Achievement

The College awards degrees "with highest distinction" to students in the highest 5 percent of the graduating class, "with high distinction" to students in the next highest 3 percent, and "with distinction" to students in the next highest 5 percent. Ranking is based on students' grade-point averages for all college-level study undertaken prior to their final registration.

The College also awards degrees "with Honors" to students who have satisfied the requirements for an Honors major, receive departmental recommendation, and are approved by the College's Honors Council and dean.

To be eligible for either form of recognition, the student must take his or her final 80 semester hours of study in residence at the College. All of these hours must be completed at least 6 of which must be semester hours of study in the College before his or her final registration.

Dean's List

Liberal Arts students achieving grade-point averages of 3.50 or above during a given semester on 12 or more semester hours of graded work with no "F"s or "D"s still standing on the current or past semester's record, are recognized by inclusion on the Dean's List for that semester.

Special Programs

Advanced Placement

Under the Advanced Placement Program of the College Alumni Entrance Examination Board, a high school senior may take comprehensive achievement examinations in a number of subjects. The College of Liberal Arts grants college credit and, where appropriate, advanced placement of students who achieve satisfactory standards in these examinations. For information, write to the College Entrance Examination Board, 476 Riverside Drive, New York, N.Y. 10027.

Credit by Examination

A student may earn up to 32 semester hours of credit, and course exemption, in the general education program of the College, or in certain departmental courses, through tests offered in the College-Level Examination Program (CLEP) of the College Entrance Examination Board. Information about the tests and permission to take them may be obtained from the Liberal Arts Advisory Office.

Foreign Studies Certificate

The College's Foreign Studies Certificate program is designed for undergraduate students who seek to broaden their knowledge of societies other than their own. The program is supplemental; the certificate is not a substitute for a major. The choice of the various language departments serves as advisors to students in preparing for the certificate. After selecting an area of interest, students wishing to earn the certificate will be guided by the appropriate chair in choosing a group of courses designed to provide a basic understanding of the area or country. Courses may include work in geography, history, anthropology, art, literature, political science or other fields offering international studies.

Programs leading to the certificate will include at least 15 semester hours in coursework related to the chosen country or area. In addition, students fulfill the foreign language requirement for the B.A. in a language appropriate to the chosen country or area. A student who successfully completes a Foreign Studies course program designed by the appropriate departmental chair receives the Foreign Studies Certificate with his or her degree.

Interested students should consult the chair of the appropriate department:

- Classics (Ancient Greece or Rome)
- East Asian Languages and Literatures (Indo, China, or Japan)
- French and Italian (France or Italy)
- Hebrew (Israel or Palestine)
- Russian (Russia or Eastern Europe)
- Spanish (Spain, Portugal, Spain, Portugal, or Latin America)

Honors

The Honors Program is a College-wide plan for exceptionally promising students. Honors students are assigned to special sections in general studies courses. Those whose major departments offer Honors curricula have opportunities to enhance their studies in Honors seminars, Independent research and other special activities, and to earn the baccalaureate degree "with Honors." Entering freshmen whose records indicate they would benefit from the Honors Program are invited to participate. However, the Program is open to all interested and qualified students.

Preprofessional (Joint Programs)

Joint programs leading toward graduation from the College of Liberal Arts may be used with the University of Iowa College of Medicine, the University of Iowa College of Dentistry, any accredited medical or dental students in the United States which offers advanced degrees, and the University of Iowa College of Engineering.

To be eligible to use a joint program with the above colleges toward graduation from The University of Iowa, a student must have completed all of the following prior to going to a "professional" college:

- Earned at least 94 hours;
- Satisfied all core and foreign language requirements;
- Met the requirement for the major;
- Satisfied the residence requirement of the College.

After the student completes the first year of medical or dental college, The University of Iowa will, upon presentation of a transcript, award a student a certificate. These credits may be applied toward a University of Iowa degree.

To use a joint program with any college
null
Mathematics
22M:10 Fundamentals of College Mathematics I 4 s.h.
or
22M:11 Fundamentals of College Mathematics II 4 s.h.

Physics and Astronomy
25:11 College Physics 4 s.h.
or
29:17 Introductory Physics I 4 s.h.

29:12 College Physics 4 s.h.
or
29:18 Introductory Physics II 4 s.h.

29:8 Basic Physics (may not be combined with any other physics core option) 4 s.h.
29:59 Modern Astronomy 4 s.h.
29:61 General Astronomy 4 s.h.
29:62 General Astronomy 4 s.h.
29:105 General Astronomy 4 s.h.

Zoology
37:3 Principles of Animal Biology 5 s.h.

Social Science Core
The social science core requirement may be met with eight or more semester hours of credit earned in any combination of courses listed below. For course descriptions, including prerequisites, see the appropriate departmental section of the Catalog.

(There is an option for transfer students to meet the social science core requirement by taking the corresponding course at another institution.)

Anthropology
113:3 Introduction to the Study of Culture and Society 4 s.h.
113:10 The World's Peoples 4 s.h.

Economics
68:1 Principles of Economics 4 s.h.
68:2 Principles of Economics 4 s.h.

Geography
44:1 Introduction to Human Geography 4 s.h.
44:2 Natural Environment and Man 4 s.h.
44:11 introduction to Social Geography 4 s.h.
44:10 Natural Environmental Issues 2 s.h.
44:05 Introduction to Urban Geography 3 s.h.
44:06 Introduction to Urban Geography 3 s.h.

Linguistics
103:11 Language and Society 4 s.h.

Political Science
30:1 Introduction to American Politics 4 s.h.
30:2 Introduction to Political Theory 4 s.h.
30:3 Intro to Political Law 4 s.h.
30:22 Intro to Comparative Politics 4 s.h.
30:60 Intro to World Politics 4 s.h.
30:10 The American Political System 4 s.h.

Psychology
91:1 Elementary Psychology 4 s.h.
or
91:3 General Psychology 4 s.h.

Sociology
24:1 Introduction to Sociology: Principles 4 s.h.
24:6 Introduction to Sociology: Problems 4 s.h.

Foreign Language Requirements
The Bachelor of Arts degree requires at least four semester credits in the language required for the B.A. degree in any of the foreign languages taught in the University. The requirement may be satisfied by completion of four years of high school study in one language; completion of a combination of high school and college study in one language; or satisfactory performance in an achievement examination measuring proficiency equivalent to the usual attainment after four semesters of college study in one foreign language.

Social Science Core
The social science core requirement may be met with eight or more semester hours of credit earned in any combination of courses listed below. For course descriptions, including prerequisites, see the appropriate departmental section of the Catalog.

(There is an option for transfer students to meet the social science core requirement by taking the corresponding course at another institution.)

Anthropology
113:3 Introduction to the Study of Culture and Society 4 s.h.
113:10 The World's Peoples 4 s.h.

Economics
68:1 Principles of Economics 4 s.h.
68:2 Principles of Economics 4 s.h.

Geography
44:1 Introduction to Human Geography 4 s.h.
44:2 Natural Environment and Man 4 s.h.
44:11 introduction to Social Geography 4 s.h.
44:10 Natural Environmental Issues 2 s.h.
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Students taking French may satisfy the foreign language requirement for the B.A. degree by taking a sequence of courses culminating in 9-28 Second-Year Composition and Conversation or 9-27 Second-Year Composition and Conversation and 9-26 French Conversation First Year. 9-26 hours is not sufficient for the fourth-semester requirement. Other combinations are possible. Check with the French Department.

Elementary Chinese or Japanese courses, 6 semester hours each for a total of 12 s.h., will meet the foreign language requirements for the B.A. degree. One semester, 6 s.h., of these languages will meet the foreign language requirement for the B.F.A., B.M., or B.S. degree.

No foreign language courses may be taken sailast fall if they are to be used toward satisfying the foreign language requirement of the College.

Mathematics Requirement
The general requirement in mathematics can be met by at least two and one-half years of high school mathematics, or a minimum score of 33 on the math section of the American College Test, or completion of MATH 220 (Basic Mathematical Techniques) or a mathematics, statistics, or computer science course taught in the Department of Mathematics Sciences.

(Transfers students may meet this requirement by completing two and one-half years of high school mathematics or by satisfactory performance in any of the comprehensive physical education skills tests given at announced times each semester. The student may receive up to four semester hours of ungraded credit for successful completion of the test.)

Physical Education Skills Requirement
This requirement may be met with four semester hours of credit in the physical education skills courses, or by satisfactory performance in any of the comprehensive physical education skills tests given at announced times each semester. The student may receive up to four semester hours of ungraded credit for successful completion of the test.)
Freshmen who take the test but fail it must register for physical education skills for at least one semester before attempting the test again. Students who have not passed the test before the beginning of the sophomore year must register for physical education skills coursework at that time; those who wish to take the sophomore course for no credit. No more than four semester hours of credit in physical education skills may be counted toward a baccalaureate degree.

Students who have passed their 23rd birthday prior to their first registration in the University are excused from the physical education skills requirement.

Students who present evidence of having completed a basic training program in some branch of military service may be excused from the requirement.

Transfer students may meet the requirement with four semester hours of transfer credit in physical education. Transfer students admitted to the University with more than 40 semester hours of transfer credit are excused from the requirement. Transfer students transferring less than four semester hours of physical education credit and less than 40 hours total credit must complete the four-hour requirement at Iowa.

The instructional program in physical education skills provides for a wide variety of activities. The program also gives the student an opportunity to correct physical defects which respond to therapeutic exercises.

Courses with which the student can meet the requirement are:

10:21 Physical Education Skills 2 a.b. Basic instruction in student's choice among a wide variety of team and individual sports, physical and nonphysical activities. See current Schedule of Courses for skills offered.

10:31 Physical Education Skills 2 a.b.

10:32 Physical Education Skills 2 a.b.

Rhetoric Skills Requirements

The College of Liberal Arts requires all entering undergraduates to enroll in rhetoric coursework each semester until they achieve a satisfactory level of competence in oral and written communication; proficiency in investigating, analyzing, evaluating and responding to the ideas, beliefs and attitudes of other writers and speakers; and proficiency in the responsible use of various sources of information and ideas.

Students are originally assigned to rhetoric courses on the basis of American College Test scores. Most entering freshmen are assigned either to 10:1-2, a two-semester, eight-credit-sequence, or to 10:3, a one-semester, four-credit course.

Students initially assigned to and registered for 10:3, 10:4, or 36R25 may attempt to satisfy all or part of the rhetoric requirement, and earn two or four semester hours of credit, by taking the writing and/or speech tests offered during the first week of the semester. Rhetoric classes begin with student performances which serve as placement indicators. Students in 10:1 who demonstrate above-average reading speed and comprehension and above-average writing skill may be advised to switch to 10:3, for example.

Students whose early work indicates a need for individualized instruction beyond their classwork may enroll for non-credit work in the Rhetoric and/or Writing Labs offered by the Rhetoric Program. Some students may be advised to switch to 10:1, a one-semester, two-credit course of individualized instruction in reading and writing, and/or to 10:2, another one-semester, two-credit course of individualized instruction in writing. No more than eight semester hours of rhetoric credit may be counted toward baccalaureate requirements.

(Transfer students may meet the rhetoric requirement with eight semester hours of transfer credit in comparable coursework, and with six semester hours of transfer credit in composition and two in speech. Students who partially satisfy the requirement with transfer credit may be advised to switch to 10:2-4 or 36R25. Students admitted to the University with 40 or more transfer credits are excused from the rhetoric requirement.)

Admission Requirements

To qualify for admission to the College of Liberal Arts, the applicant must meet the College requirements outlined below, and any special requirements for the program of his or her choice.

Entering Freshmen

An applicant seeking admission as an entering freshman must have the high school from which he or she graduated provide a certificate of high school credits, including a complete statement of high school record, class rank, scores on standardized tests and certification of graduation. An applicant may be tentatively admitted after he or she has completed the junior year in high school; but admission will not be final until receipt of the transcript and certification of high school graduation. A graduate of an approved Iowa high school who has the proper subject-matter background, is in the upper one-half of his or her graduating class and meets specific curricular requirements, will generally be admitted upon certification of graduation. An applicant who is not in the upper one-half of his or her graduating class may be required to take special examinations, and, after a review of the entire record 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.

A graduate of an accredited high school in another state will be expected to meet higher standards than the requirements for a graduate of an Iowa high school. The options for admissions by probation or trial enrollment may not be open to these students.

A graduate of a nonapproved high school must submit all data required above, and must take examinations which demonstrate his or her general competence to do successful college work.

An applicant who is not a high school graduate 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.

Undergraduate Students Transferring from Other Colleges

Students from Accredited Colleges and Universities

Transcripts of records are given full value if they come from colleges or universities accredited by the North Central Association of Colleges and Secondary Schools or similar regional associations. The recommendations contained in the current issue of
the Report of Credit Given by Educational
institutions authorized by the American
Association of Collegiate Registrars and
Admissions Officers will be followed for
awards not regionally accredited.
Each applicant must submit an official
transcript bearing the original seal and
signature of the official in charge of
records from each college or university the
student has previously attended. The applicant
must also submit any other records or letters
the College may require to support his or her
application for admission.
A transfer applicant is expected to have
maintained a C average (2.0 ine a 4-point
system) for all college work attempted and
must not be under suspension from the last
college attended. Transfer applicants who
are not residents of Iowa are expected to
have maintained a 2.25 average. An
applicant who does not meet this standard
may be permitted to take entrance
examinations. An applicant who successfully
completes the examinations may be
admitted on probation.
In general, transfer applicants under
academic suspension from the last college
attended will not be considered for
admission during the period of suspension
or, if suspended for an indefinite period, will
not be considered until six months have
passed since the last date of attendance.
When eligible for consideration the applicant
will be considered on the basis of his or her
performance on the entrance examinations.
A transfer applicant under disciplinary
suspension will not be considered for
admission until a clearance and a statement
of the nature of the disciplinary action from
the previous college. When it becomes
proper to consider an application from a
student under suspension, the College must
take into account the fact of the previous
suspension. An applicant granted admission
under these circumstances will in each case
be admitted on probation, and his or her
admission will be subject to cancellation.

Students from Nonaccredited Colleges

The College may refuse to recognize credit
from a nonaccredited college or may admit
the applicant on a provisional basis and
provide a means for the validation of some
or all of the credit. The validation period
shall not be less than one semester and will
under no circumstances be a full academic
year. The College will specify to the student the
term of the validation process at the time of
provisional admission. Each student from a
nonaccredited college is considered on his
or her merits, and admission or rejection is at
the discretion of the admissions officer.

Foreign Students

Foreign applicants (alumni who are or will be
in the United States temporarily under
provisions supervised by the U.S. Immigra-
tion Service for purposes of attending
educational institutions), whether U.S. high
school graduates or not, may be asked to
meet higher standards lor admission than
the minimum requirements outlined for a
resident graduate of an 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 may
be granted. The Admissions Office may use
other tests or criteria for judgment of
proficiency for admission purposes. Stu-
dents admitted with a TOEFL score of 500
or above will be considered proficient in English
and held only to the same English
requirements as other students. Students
who score between 480-500 (TOEFL) are
required to take an English proficiency
evaluation by the University's Department of
Linguistics prior to registration.
Freshmen evaluated as proficient must
enroll in 101 or 103 Rhetoric. If not
proficient, the student must enroll in
appropriate English as a Second Language
(EFL) courses. Thereafter, evaluation of
the student's language competency must be
made every semester prior to registration,
and the student must continue to enroll in
EFL courses until the student demonstrates
proficiency or has earned a TOEFL score of
500 or more.
The Linguistics Office offers eight EFL
courses (103-105 and 103-191-197).
Foreign students who have attended a U.S.
college or foreign college, or both, before
transferring to Iowa for undergraduate study
may be expected to meet higher admission
standards than the minimum requirements
outlined for in-state transfer students.
Foreign transfer students will have their
proficiency in English evaluated in the same
manner as entering freshmen. Those
who are ultimately evaluated as proficient will
fulfill the uniform undergraduate rhetoric
requirements. If not proficient, enrollment in
EFL courses is required until proficiency is
demonstrated. Like foreign applicants,
immigrants (permanent aliens) from typically
non-English-speaking backgrounds may be
required to take the TOEFL, or other suitable
measures of English proficiency.

Aerospace Military Studies

Department Head: W. G. Col. George L. Jones
Instructor: W. G. Col. George L. Jones
Coordinator: Capt. James D. Doyle, Capt. Roger A.
Ney

The Air Force Reserve Officers Training Corp
(AFROTC) at Iowa is designated as the
Department of Aerospace Military Studies
in the College of Liberal Arts. Credits
earned in the Department may count toward
any degree the University offers. A student
may enroll in any academic course the
Department offers, whether the student is a
cadet or not.

To meet the challenges of complex,
high-technology developments, the Air
Force must have a professional officer corps
with special abilities in a wide range of
technologies. Specialized aircraft manned by
skilled pilots and navigators are vital to the
military's tactical effectiveness. The AFROTC
is designed to train officers with these
specialties. The first two years of the
program at Iowa, and participation in the
junior years, are planned to develop
individuals who are both knowledgeable as
Air Force officers, and capable of
commanding and leading men and
equipment in the field. The AFROTC
program is designed to train
officers with these capabilities. The first
two years of the program at Iowa, and
participation in the junior years, are
planned to develop individuals who are
both knowledgeable as
Air Force officers.

Standard Program

The Air Force recognizes that the officer
must be a well trained, highly competent,
resourceful manager. To insure that these
traits are given an opportunity to develop,
AFROTC has developed an approach to
learning which stresses student responsibil-
ity and involvement. In small seminars, cadets
engage in group discussions, debates, problem-solving,
and simulation activities requiring maximum
individual participation and group coopera-
tion. An essential part of the learning
program is the development of a student's
capability to think critically and to
conduct independent research.
Throughout the year, classroom instruction is supplemented by 3- and 4-day visits to Air Force bases, for orientation to Air Force life.

### Two- and Three-Year Programs

Although the AFROTC curriculum normally spans four years, it can be completed in three years by completing the first two years' courses into one year. The program also can be completed in two years if the student attends a six-week summer field training at an Air Force base before beginning the last two years of the regular curriculum. Students interested in the two-year program should contact the Department of Aerospace Studies early in the semester prior to attendance at field training.

### Field Training

Prior to commissioning, all cadets must attend a field training session offered at Air Force bases across the country. Field training for four-year cadets is four weeks in length and includes courses in cadre orientation, survival training, aerial orientation, physical training, Air Force organization and function, career orientation, small arms familiarization, and human relations.

Two-week periods on active duty working in the student's future career area or attendance at the airmen's "jump" school are voluntary, but optional assignments are available to selected students.

### Advanced Placement

Service veterans can get full credit toward commissioning (not graduation) for the first two years of AFROTC.

### Flight Instruction Program

During the year prior to commissioning, students qualified for pilot training will receive 25 hours of flying training from the Iowa City Flying Service.

### Financial Assistance

Scholarships which provide tuition, books, laboratory fees, and a $100 per month tax-free subsistence allowance are available to cadets. Applications for four-year scholarships are submitted directly to National AFROTC Headquarters. Applications for 3, 2, and 2-year scholarships are submitted through the Department of Aerospace Studies at the University.

All cadets in the last two years of AFROTC receive $150 monthly as a tax-free subsistence allowance. Students attending field training are paid while there and receive travel expenses. Uniforms and books for uniforms bought by military faculty are furnished and a $300 uniform allowance is provided for commissioned officers.

### Educational Delay

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

### Special Activities

The Department of Aerospace Studies sponsors several activities which contribute to cadet and University life.

The Arnold Air Society is a national professional honor society which engages in University and community service activities. The Cadet Corps sponsors social activities throughout the year, including informal parties, a formal dinner, a military ball, and an awards ceremony which honors outstanding cadets for their accomplishments.

### Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>23A/11</td>
<td>The Air Force Today</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>23A/96</td>
<td>Leadership Laboratory</td>
<td>0 s.h.</td>
</tr>
<tr>
<td>23A/12</td>
<td>The Air Force Today</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>23A/97</td>
<td>Leadership Laboratory</td>
<td>0 s.h.</td>
</tr>
<tr>
<td>23A/31</td>
<td>The Development of Air Power</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>23A/98</td>
<td>Leadership Laboratory</td>
<td>0 s.h.</td>
</tr>
<tr>
<td>23A/32</td>
<td>The Development of Air Power</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>23A/97</td>
<td>Leadership Laboratory</td>
<td>0 s.h.</td>
</tr>
<tr>
<td>23A/114</td>
<td>Management and Leadership</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>23A/98</td>
<td>Leadership Laboratory</td>
<td>0 s.h.</td>
</tr>
<tr>
<td>23A/115</td>
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</tr>
<tr>
<td>23A/97</td>
<td>Leadership Laboratory</td>
<td>0 s.h.</td>
</tr>
<tr>
<td>23A/112</td>
<td>National Security Forces in</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
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<td>Leadership Laboratory</td>
<td>0 s.h.</td>
</tr>
</tbody>
</table>
Disciplines in the humanities and social sciences. The Program originated in 1961 in courses intended to foster awareness of the role Afrodiaspora members played in the development of the United States and to promote understanding of the present conditions and concerns of black Americans. Subsequently, these courses have been organized into a curriculum indicating a program leading to the Master of Arts degree in Afro-American studies, and concentrations of Afro-American Studies in programs leading to a B.A., M.A., or Ph.D. in Afro-American Studies. It is also possible for students seeking Ph.D. degrees in English or History to organize courses in Afro-American Literature or Afro-American History into a special field or cognate area.

Although most of the students in the PhD program are preparing to work in colleges and universities as teachers and administrators, the B.A. and M.A. programs provide valuable backgrounds for many other students seeking careers in community work, public school teaching, religion, government, and political science. In short, the Afro-American Studies Program offers training important to any individual whose career will involve understanding and knowledge of black Americans.

Undergraduate Study

Although there is not a degree program in Afro-American Studies at the undergraduate level, students interested in the field may wish to offer a concentration of Afro-American Studies courses within a program leading to a B.A. in American Studies. Undergraduates following such a program would be expected to take the following courses in Afro-American culture: 469, 460, 456; and five electives in Afro-American Studies from courses numbered between 4513 and 4599. Students are encouraged to take 4510, 4511, and 4515, 4516a as prerequisites to more advanced courses in Afro-American literature and history.

Graduate Programs

The Master of Arts Program

The interdisciplinary curriculum leading to a Master of Arts degree in Afro-American Studies has been designed particularly for individuals desiring an intensive, organized, graduate-level examination of Afro-African American culture and experience. Such a program expects to begin with students preparing to teach in community colleges, to work with community-service organizations, or to involve themselves in careers for which an understanding of Afro-Americans may be significant.

Curriculum Requirements

The Master of Arts program in Afro-American studies comprises 34 post-baccalaureate semester hours, normally completed in three semesters. Requirements include 4511, 4512, and 12 semester hours of elective courses in Afro-American Studies. All students will be required to earn six semester hours in literature/history by taking 4516a and 4516b, Afro-American History 1800-1965, 1825 to Present. Students who have earned undergraduate or graduate credit for a year-long survey of African-American Literature of African-American history will satisfy the literature/history requirement by studying that area for which they have no undergraduate credit. Students who have earned neither undergraduate nor graduate credit in Afro-American literature and Afro-American history may be required to complete both 4516a and 4516b with only one each of 4511, 4512, and 4515 to make 45 hours. A student who has completed year-long, undergraduate or graduate surveys in both Afro-American literature and Afro-American history will be permitted to satisfy the literature/history requirement by selecting six hours of Afro-American Studies electives approved by the student's advisor.

Because the Afro-American Studies Steering committee wishes to encourage doctoral study for those who share the stated interest, and the resources, it recommends that the other nine semester hours be required in the Master of Arts Program be used to explore doctoral education in disciplines outside of Afro-American Studies. Among possible fields of study are American studies, anthropology, education, English, geography, history, and sociology. Students are encouraged to select at least one-half of the coursework in their curricula from those numbered 200 above 200.
Language/Text Requirements
No foreign language or test is required for the Master of Arts Program in Afro-American Studies, but individuals desiring the possibility of doctoral study in another field will be encouraged to attempt to complete one foreign language requirement for matriculation while studying on the master's level.

Comprehensive Examinations
Each student will be required to pass a written comprehensive examination in Afro-American Studies. The comprehensive examination will be prepared and evaluated by a committee of faculty members who teach courses in the Afro-American Studies Program. A component of the comprehensive examination will be based on a reading list in Afro-American studies prepared and approved by the Afro-American Studies steering committee.

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 such a thesis is four semester hours, and an A on the thesis eliminates the requirement of 45:212.

A student who does not elect to prepare a thesis is 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.

Admission Requirements
In addition to the general requirements of the Graduate College, unconditional graduate admission in Afro-American Studies requires an appropriate academic background in literature and the social sciences, at least six hours of collegiate credit in courses in Afro-American literature and/or history, and a minimum grade-point average of 2.7 in previous collegiate courses in Afro-American studies. A student may be asked to take, without credit towards the master's degree, courses needed to remedy any deficiencies in undergraduate preparation.

An applicant for admission will be expected to provide three letters of recommendation from former professors, and a sample of his or her scholarly written work. Recommendations for admission will be made by the admissions subcommittee of the Afro-American Studies steering committee.

Afro-American Studies
Concentration within an M.A. Program in American Studies
Generally, a student seeking a concentration in Afro-American Studies within a Master of Arts program in American Studies will be an individual who is preparing for a career as a research scholar or a college/university teacher, and proposes to undertake doctoral study in American Studies. Of the 36 post-baccalaureate semester hours required for the degree, 12 to 24 normally are to be taken in Afro-American Studies. Since the Afro-American Studies program is interdisciplinary, students taking 24 hours are required to complete 45:211, and are encouraged to complete 45:116-117 and 45:185-186, except when equivalent courses have been taken on the undergraduate level.

For other requirements, see the program for a Master of Arts in American Studies described elsewhere in this Catalog.

Afro-American Studies
Concentration within a 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 on the college or university level. Of the 72 post-baccalaureate semester hours minimally required for the degree, at least 30 semester hours (not including the thesis) must be in courses in Afro-American Studies, including 45:211, 45:116-117 and 45:185-186 also are required, except when the student has completed equivalent year-long surveys in Afro-American Literature and History 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 thesis (dissertation) must not only inculpate research from more than one field, but must be focused on an aspect of Afro-American culture or experience.

Other Requirements
For additional requirements, please see the description of the requirements for the doctoral program in American Studies in the appropriate section of this Catalog.

Cogent Ares or Special Fields
It is possible for students to take concentrations in Afro-American courses on a coherent area or special fields in Ph.D. programs in history, English, and other disciplines. For further details, consult with an adviser in Afro-American Studies.

Co-Curricular Activities Related to Afro-American Studies
Black Kaleidoscope
Each year the Afro-American Studies Program attempts to promote knowledge and consciousness within the on-campus and off-campus communities by sponsoring Black Kaleidoscope, a series of lectures and demonstrations by scholars and artists distinguished in Afro-American culture.

Institute in Afro-American Culture
Since 1968 The University of Iowa each summer has served as host for an Institute in Afro-American Studies for college and university teachers. The institutes, which bring renowned artists and lecturers to the campus, have focused on such topics as Harlem Renaissance, Richard Wright, W.E.B. DuBois, black Americans in theater, and slave narrate. Although students in residence at the University are not eligible to be official members of the Institute, they are permitted to enroll in a 3 s.h. course which is offered at the same time as the Institute and on the current year's topic.

Black Action Theater
A co-curricular activity which is academically sponsored through the Afro-American
Studies Program. Black Action Theater affords participants an opportunity for instruction and experience in theatrical productions of plays by black authors.

**AFRO-AMERICAN CULTURAL CENTER**

The Afro-American Studies Program encourages participation in the facilities of the Afro-American Cultural Center. The Center serves as a museum and library for educational and cultural artifacts and exhibits of black culture. Thus, it provides cultural enrichment for black people of the Iowa City community and a cultural meeting place for black students. It also attempts to promote a knowledge of black culture which will improve interracial understanding among all members of the University community.

**Black Gospel Troupe**

The Afro-American Studies Program also encourages participation in the Black Gospel Troupe, a student organization which blends dance, music, poetry, and visual arts in representations of black culture and history.

**COURSES**

**AFRO-AMERICAN STUDIES AND RELATED AREAS**

46:16 Literature of the African Peoples 3 s.h.

An introduction to selected works of non-European black writers of the United States, the Caribbean, and Africa. Open to undergraduates only. Same as 11:16.

46:16 Black Poetry Workshop 3 s.h.

A survey of black poetry from its roots in the slave cultures and apartheid in the black community of the 1960s. Discussion and criticism of poems submitted by the students. Open to undergraduates only. Same as 11:16.

46:16 Literary Perspectives 3 s.h.

An overview of non-European black literature from the 1960s to the present. The relationship of the black novel to the cultural, social, and historical influences. Open to upper-division undergraduates and graduate students. Same as 11:16.

46:16 Artistic Literature 3 s.h.

A survey of the artistry of literature of contemporary African women. Open to upper-division undergraduates and graduate students. Same as 11:16.

46:16 Afro-American Literature I 3 s.h.

A study of the works of African-American writers with attention to social, cultural, national, and African backgrounds. Open to upper-division undergraduates and graduate students. Same as 11:16.

46:16 Black Writers of Particular Geographical Regions 3 s.h.

A study of the works of African-American women in different regions of the United States, with attention to social, cultural, and historical influences. Open to upper-division undergraduates and graduate students. Same as 11:16.

46:16 Black Poetry and Playwrights 3 s.h.

An examination of African-American poetry and plays with special attention given to regional, cultural, and historical context. Open to upper-division undergraduates and graduate students. Same as 11:16.

46:16 Afro-American Literature II 3 s.h.

A study of the African-American writers from the 19th century to the present. The relationship of the black novel to the political, cultural, and historical influences. Open to upper-division undergraduates and graduate students. Same as 11:16.

46:16 Afro-American Literature III 3 s.h.

A study of literature developed among African-Americans from 1950 to the present. The evolution and development of the black novel to the political, social, and cultural influences. Open to upper-division undergraduates and graduate students. Same as 11:16.

46:16 Afro-American Literature IV 3 s.h.

A survey of the artistry of literature of contemporary African women. Open to upper-division undergraduates and graduate students. Same as 11:16.

46:16 Afro-American Literature V 3 s.h.

A study of the works of African-American writers with attention to social, cultural, national, and African backgrounds. Open to upper-division undergraduates and graduate students. Same as 11:16.

46:16 American Colonial Backgrounds 3 s.h.

A study of the political and social history of the United States from its first black settlements to the present. Open to upper-division undergraduates and graduate students. Same as 11:16.

46:16 Afro-American Literature VI 3 s.h.

A study of literature developed among African-Americans from 1920 to the present. The evolution and development of the black novel to the political, social, and cultural influences. Open to upper-division undergraduates and graduate students. Same as 11:16.

46:16 Afro-American Literature VII 3 s.h.

A survey of the artistry of literature of contemporary African women. Open to upper-division undergraduates and graduate students. Same as 11:16.

46:16 Afro-American Literature VIII 3 s.h.

A study of the works of African-American writers with attention to social, cultural, national, and African backgrounds. Open to upper-division undergraduates and graduate students. Same as 11:16.

46:16 Afro-American Literature IX 3 s.h.

A study of literature developed among African-Americans from 1950 to the present. The evolution and development of the black novel to the political, social, and cultural influences. Open to upper-division undergraduates and graduate students. Same as 11:16.

46:16 Afro-American Literature X 3 s.h.

A survey of the artistry of literature of contemporary African women. Open to upper-division undergraduates and graduate students. Same as 11:16.

46:16 Afro-American Literature XI 3 s.h.

A study of the works of African-American writers with attention to social, cultural, national, and African backgrounds. Open to upper-division undergraduates and graduate students. Same as 11:16.

46:16 Afro-American Literature XII 3 s.h.

A study of literature developed among African-Americans from 1920 to the present. The evolution and development of the black novel to the political, social, and cultural influences. Open to upper-division undergraduates and graduate students. Same as 11:16.

46:16 Afro-American Literature XIII 3 s.h.

A survey of the artistry of literature of contemporary African women. Open to upper-division undergraduates and graduate students. Same as 11:16.

46:16 Afro-American Literature XIV 3 s.h.

A study of the works of African-American writers with attention to social, cultural, national, and African backgrounds. Open to upper-division undergraduates and graduate students. Same as 11:16.

46:16 Afro-American Literature XV 3 s.h.

A study of literature developed among African-Americans from 1950 to the present. The evolution and development of the black novel to the political, social, and cultural influences. Open to upper-division undergraduates and graduate students. Same as 11:16.

46:16 Afro-American Literature XVI 3 s.h.

A survey of the artistry of literature of contemporary African women. Open to upper-division undergraduates and graduate students. Same as 11:16.

46:16 Afro-American Literature XVII 3 s.h.

A study of the works of African-American writers with attention to social, cultural, national, and African backgrounds. Open to upper-division undergraduates and graduate students. Same as 11:16.
404:122 Modern African Women
Same as 135:222

404:125 Asian Issues in Afro-American History
A study of selected topics in the history of Afro-Americans, primarily in the United States. Open to advanced undergraduates or graduate students. Same as 104:125.

404:127 Black Muse in American Drama and Theatre, 1787-1945
A literary and critical analysis of major works of major Negro playwrights. Open to advanced undergraduates or graduate students. Same as 104:127.

404:210 Readings in the Culture of Black America
An overview of the spiritual, economic, political and religious experience which have shaped the black American. Primarily for graduate students.

404:211 Introduction to Research in Afro-American Culture
An introduction to research methods and bibliographies in support of the study of Afro-American culture. Required of graduate students concentrating on Afro-American Studies. Primarily for graduate students.

404:212 Advanced Readings in Black Culture
A seminar focusing on societal, social and political thought in the context of American society. Primarily for graduate students. Same as 104:212.

404:215 Politics and the Black Writer
An attempt to probe the role values play in the publication of political thought given to selected black writers. The fail of writers to determine the role of the black writer for a particular time. Primarily for graduate students.

404:222 Religion and Black Culture
A study of the influence of African and African American religious and philosophical viewpoints on various areas of the world. Primarily for graduate students. Same as 222.

404:227 Three African Writers
Same as 227.

404:239 Second Afro-American History
An advanced study of the Afro-American experience with emphasis on selected topics. Primarily for graduate students. Same as 104:239.

404:240 Readings in Afro-American History
Introduction to bibliography, methodology and methodology of the field of Afro-American History. Primarily for graduate students. Same as 104:240.

404:250 Research for Study of Afro-American Literature
Attention given to essays, book reviews, fiction, poetry, music, theater and film. Emphasis on understanding of literature in Afro-American tradition. Primarily for graduate students.

404:312 Advanced Research in Afro-American Culture
May be taken as seminar or as independent study for graduate student concentration in Afro-American studies. Permission is required for course in Afro-American Studies and 404.

404:314 Seminar: Advanced Study in Afro-American Drama
In-depth study of selected Afro-American playwrights and performance. Prerequisite: 404:127 or equivalent. Primarily for graduate students.

404:326 Seminar: Advanced Study in Afro-American Poetry
A study of the life and works of major Afro-American poets, including obligations relating to their professional integration. Primarily for professional students. Same as 104:326.

404:346 Seminar: Literature and Other Disciplines
An interdisciplinary study of major works of major figures in black culture. Primarily for graduate students same as 404.

404:350 Significant Courses Related to Afro-American Studies
For course descriptions, see appropriate sections of this catalog.

Business Administration
66:252 Employment Relations and Public Policy

Economics
66:377 Problems in Urban Economics

Education
77F:104 Education in Newly Developing Countries
77F:120 Educational Sociology
77F:280 Seminar: Value Problems in the Administration of American Education
77F:106 Socialization of the School-Age Child
77F:137 The Culturally Different in Educational Settings

History
16:81 American History, 1492-1877
16:82 American History, 1877-1950
16:163 United States in the Early Republic
16:164 Civil War and Reconstruction
16:165 The Gilded Age in America
16:166 The Progressive Era in America
16:167 The Contemporary United States 1920-1940
16:168 The Contemporary United States 1940-1967
16:169 The Revolutionary Generation in America
16:170 American Thought and Civilization 1820-1865
16:180 American Thought and Civilization 1865-1917

American Studies Program
Program director: Albert E. Stone
Faculty: (in alphabetical order) Margaret G. McNeill (Women's Studies, Women's, Assistant Professor John Reamer (American Studies, English, American Studies), Jennifer B. Watson (American Studies, History, American Studies).
The major program normally consists of 12 courses (38 s.h.) selected to meet the following guidelines:

Four courses (12 s.h.) in American or Afro-American Studies, including 45:60 and two additional courses from 45:25, 45:60, 45:61, 45:101, 45:102, 45:157, 45:163; 45:166, 45:196; Two courses (8 s.h.) in American History, normally 18:61, 18:62, and/or 18:82; Six courses (18 s.h.) from cognate departments (additional American Studies courses). In consultation with an advisor, the student should select appropriate courses which relate and support a common period, topic, theme, or problem in American cultural experience.

Honors

Honors candidates in American Studies must elect 45:80 and 45:96. In the latter course, the student will, with the advisor's help, define and research an interdisciplinary topic and present the results in a senior essay.

The Master of Arts Program

The M.A. in American Studies may be either a terminal degree or preliminary to the Ph.D. in American Studies or in a traditional department.

A joint program exists with the College of Law which offers a joint cultural context for the study and practice of law and leads to the J.D. and M.A. degrees simultaneously. Similar joint programs may be arranged in other professional fields.

The M.A. program is designed to be completed in three semesters, and normally includes 12 courses (38 s.h.). These courses should be chosen to meet the following requirements:

Four American Studies courses or seminars, including 45:60, 45:401, and two additional courses.

Four courses in one field or aspect of American Studies, either in a traditional discipline or on a topic, period, or problem approached from several disciplinary or methodological perspectives.

Four courses in another field or aspect of American Studies, and

A comprehensive examination on coursework and basic concepts.

The Doctoral Program

The doctoral candidate in American Studies, in consultation with an advisor, arranges a coherent program of courses and seminars for a minimum of 72 s.h. beyond the B.A. Successful completion of these courses, the comprehensive examination and the writing of the doctoral thesis, together with demonstrated mastery of the requisites tools and works, comprise the steps to this interdisciplinary degree in cultural studies.

Candidates prepare themselves in five areas: American Studies seminars in interdisciplinary approaches and methods; substantial coursework in a major field or topic; equivalent work in a second major field or topic; coursework in a minor field or topic, and tools, skills, or comparative culture study. Although permitted considerable flexibility in planning a program, the American Studies candidate must meet certain basic requirements. One such requirement is that all students directly engage, in both coursework and reading, the cultural diversity of American life and experience. Therefore, some coursework in each of the following areas: American Studies, Women's Studies, Native American culture, or Chicano culture is expected: this will be superficially explored on the candidate's oral exam. A second requirement is that all programs will include substantial study of one period of American cultural history as defined to reflect the student's specific interest. The five general areas are as follows:

American Studies: The candidate will normally elect four or five courses or seminars in American Studies, including 45:60 and 45:201 in the first year. Of the remaining courses, 45:930 a tutorial in independent reading and research leading to a course syllabus or publishable essay is strongly recommended. Instead of a written exam in this area, the candidate will prepare a position paper or interdisciplinary essay.

First Major Field: Normally, six or seven courses (18-21 s.h.) will be selected in one field, area, or topic, and may be chosen to form separate independent areas in literature. The nature and scope of this major field will vary. For some, it will be a traditional disciplinary field such as American Social and Intellectual History, American Politics, or American Material Culture. For others, it may be a comparative study of institutions, family, or the contemporary city, or of thematic or period studies (e.g., woman in American culture: 1820-1930, or contemporary popular culture).

After taking a group of related courses, the student will compose a list of key texts, document, or artifacts which focus the coursework and on which a four-hour written examination will be based.

Second Major Field: The student selects six or seven courses in another field, topic, or theme in American culture studies, complementary to the first field. If the first field is defined broadly or traditionally, the second might be more specific or thematic. If one field is predominantly artistic in content, the other might focus on history or the social sciences. None of several courses may be combined to flesh out a special field, but overlap/depth/claims for credit should be avoided.

Again, a four-hour written exam will be held on a list of books, documents, or artifacts from this area. This written exam, together with the position paper and the four-hour written exam, will form the grounds for the final examination.

The Minor Field. This area will normally comprise three or four courses, or relevant portions of a larger number, organized around a specific topic or subdiscipline. Examples: Indian-White Cultural Relations, Conquest of an American Soil, Technology and American Culture. A student who wishes to explore a larger field or discipline within the scope of a minor field or topic may, if so provided, one of the major fields has a thematic or specific focus.

Instead of a written exam, the student will prepare an annotated bibliography on the field which will be evaluated by a member of the minor field committee, a student who has already submitted an annotated bibliography for a course study or for a four-hour written exam based on a subject/area/related reading list.

Finally, Comparative Universities, Inc. The final area of coursework in American Studies is a broader category for up to 12 semester hours, to be selected on the student wishes among the following:

Up to 6 s.h. for graduate-level courses in a foreign language, re-naming, linguistics, computer science, statistics, etc.;

Up to 6 s.h. thesis research and writing, following completion of the comprehensive exam and other requirements;
Tools and Skills

In addition to coursework, American Studies doctoral candidates must demonstrate mastery of certain tools and skills useful for culture studies. These are meant to complement fields of study, provide theoretical or methodological perspectives, and facilitate research. Tools and skills include foreign languages, statistics and computer science, still or motion picture photography, linguistics, creative writing, and certain courses, such as psychosocial analysis, communications, or political theory. Two tools or skills requirements must be satisfied for the Ph.D.: this may be done by coursework, prior experience, summer internships, or independent study.

Internships

Internships for qualified American Studies students can be arranged with the following institutions: State Historical Society of Iowa, Division of History Preservation; University of Iowa Museum of Art; Living History Farms; Herbert Hoover National Historic Site; Putnam Museum, Davenport. Research is conducted during such on-the-job training. Academic credit can be granted, either for semester or summer programs.

Thesis

The final requirement for the Ph.D. is a satisfactory thesis on a topic the investigation of which involves more than one field or discipline. Creative theses (including fiction, ethnography, film, etc.) are allowed if continued with critical analysis of the cultural experiences reflected therein.

Courses

Primarily for Undergraduates

40 1 American Values 3 s.h.
40 2 American Culture 3 s.h.
40 3 American History 3 s.h.
40 4 American Politics 3 s.h.
40 5 American Society 3 s.h.
40 6 American Literature 3 s.h.
40 7 American Literature 3 s.h.
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In social anthropology, the remaining hours are to be selected in consultation with the advisor.

Anthropology also offers a wide range of choices, including courses dealing with language and culture, social problems of underdeveloped areas, religious activity in tribe and tribal settings, primitive art, biological anthropology and urban anthropology. Specialization is discouraged in the undergraduate program, which is designed to give the student the broadest possible cross-cultural background.

Counselors are encouraged to work with related areas as sociology, linguistics, paleontology, geography, history, psychology, zoology, and ethics. Students are also encouraged to participate in archaeological field research.

Special Programs

Honors

Designed for maximum development of superior abilities and interests, the Honors Program in Anthropology is open to students with a minimum cumulative grade-point average of 3.0 overall and 3.2 in anthropology. In addition to the regular requirements for a major in anthropology, Honors students must complete the Department's Honors Seminar and Honors Research seminars.

Field Research

Opportunities are available for students to participate in archaeological field research either at a site near Mexico City or at various sites in Iowa. Under the direction of University archaeologists, they require on-the-job knowledge of archeological techniques and methods of interpreting artifacts.

Graduate Programs

Although dedicated to the holistic view of anthropology, the Department's emphasis is on archeology and social-cultural anthropology. The Department offers work leading to the degrees Master of Arts and Doctor of Philosophy in anthropology.

M.A. Program

The M.A. program is in general nature, designed to prepare the student to deal with any aspect of anthropology at an intermediate level.

The Department offers the M.A. degree with or without thesis. The latter program is considered terminal, andpractical consideration for admission to the Ph.D. program.

The number of semester hours of credit required for the M.A. with thesis may vary from 30 to 36, depending upon the student's previous anthropological training. The program consists of at least 36 semester hours of graduate work. A 36-hour M.A. degree without thesis is available in conjunction with a minor concentration in museology.

The first-year graduate student entering the program with a B.A. degree in anthropology will, in coordination with an assigned faculty advisor, work out a program which will include those distribution requirements for which prior experience or competence can not be demonstrated on the basis of undergraduate courses taken. First-year students entering the program with a B.A. or M.A. degree in a field other than anthropology normally will be expected to take more courses in anthropology than those who majored in the field as undergraduates.

The program will be tailored to the needs and background of the student.

The following distribution requirements exist in the M.A. level: (a) one of the following: 112:140 Social Anthropology, 112:240 History of Anthropology, (b) one of the following: 112:246 Seminar: History of Anthropology, 112:201 Seminar: Anthropological Theory, 112:371 Anthropological Linguistics, 112:172 Language and Culture, 112:188 Archaeology Theory and Method, 112:293 Seminar: Biological Anthropology and Method; (c) 112:285 Biological Anthropology, 112:250 Seminar: Biological Anthropology; (d) one course in a social institution; (e) one course in linguistics [including courses from the Department of Linguistics]; (f) one course in anthropology.

No more than nine semester hours of course outside of anthropology and no more than three semester hours of independent study may be applied toward the M.A. degree requirements in anthropology.

Students with previous training in anthropology, whether their undergraduate major, major area of teaching or in any part of the above distribution requirements.

Anthropology/Museology Joint M.A. Program

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 museology. Details of exhibit preparation and the general operational procedures of small interpretive museums form part of the student's training. Further information on this option may be obtained by interested students from the Department of Anthropology or the Museum of Natural History.

Ph.D. in Anthropology

The Ph.D. degree represents a balance between general competence in all the subfields of anthropology covered at the M.A. level, and a professional level of specialization in one. These are the requirements at least 72 semester hours of graduate coursework:

- Demonstration of a reading knowledge of one foreign language;
- Mastery of one research skill (e.g., fluency in a foreign language or proficiency in a branch of mathematics, logic, computer programming, geology, or paleontology);
- Ethnographers or archeological specialization in a major geographic area approved by the student and a Ph.D. advisory committee (e.g., North America, Mesoamerica, Oceania, Southeast Asia and the circumpolar region);
- Specialization in a major and minor topical area (e.g., kinship or social organization, emplacement, settlement pattern, archaeological, language, culture, religion, social ecology, urban anthropology);
- A written comprehensive examination in the student's areas of specialization and Preparation and oral defense of a dissertation.

The comprehensive examination orally will be taken when the student's coursework is completed or nearly completed, after the student's dissertation requirements have been satisfied, and before he or she begins fieldwork.
Minor in Anthropology

A graduate student from another department of the University may obtain a minor in anthropology. The number of credit hours and the selection of courses which constitute the minor should be arranged in consultation with the advisor of the faculty of the Department of Anthropology, and with appropriate members of the student's major department.

Special Facilities

The Department of Anthropology has access to the Iowa Archaeological Collections and the University is a charter member of the Human Relations Area Files, an extensively annotated list of surface materials on the peoples of the world—their environments, behavioral patterns, social lives and cultures. The HFRA Files and other library resources give anthropology students access to surface materials on more than 400 different cultures.

A field laboratory with extensive archaeological research data is maintained in Mexico.

Financial Assistance

A limited number of teaching and research assistantships are available. Application for an award should be made directly to the chair, Department of Anthropology.

Faculty Strengths

Members of the anthropology faculty have studied and lived in the Pacific islands, the Orient, the Caribbean, Mesoamerica, Latin America, and the Subarctic. During the past three years departmental faculty have conducted field research in Mexico, Guatemala, Venezuela, Mestizopel, the Philippines, Micronesia, Thailand, the Canadian Subarctic, St. Lucia, and Iowa.

Recent research by departmental faculty includes precontact trade networks and the role of hydraulic cultivation systems in the emergence of civilization in the Valley of Mexico, patterns of political and economic development of emerging countries, comparative ethnographic studies of hunting and gathering groups, archaeological investigations of Nahuatl-inhabited sites in Iowa, alcohol use and abuse in Costa Rica, agricultural and economic decision making among rural peoples in northern Thailand, and archaeology's excavations in Micronesia and the Philippines, and Mayan linguistics in Guatemala.

Courses

For Undergraduates Only

103 Introduction to the Study of Culture and Society

3 s.h.

Conservative study of culture and ethnic organizations may be taken in partial fulfillment of social science core requirement.

105 The World's Peoples

3-4 s.h.

Anthropological studies of community life around the world; systems of belief and culture in which different peoples have anthropological features and ethnographic data on American, African, European, or Asian cultures may be taken in partial fulfillment of social science core requirement.

111 Introduction to Archaeology and Physical Anthropology

3-4 s.h.

Origins and development of man and society from the origins of man to the development of archaic economic structure in man's physical environment and culture history.

114 Language and Culture

3 s.h.

Language and human communication in cultural context; animal communication in relationship to the origin and development of language; non-verbal communication.

120 Introduction to Middle Eastern Peoples

3 s.h.

Prehistoric cultural sequence of the Near East; background of present-day peoples; exploration of current and future research in Near Eastern peoples; history up to the present times, up to 1500 B.C.

130 Historical Reality

1-3 s.h.

Supervised reading in some special area or subdivision of anthropology in which student has had basic course.

131 Social Stages: Anthropology

3 s.h.

For undergraduates majoring in anthropology academic year. Selected readings and methodological issues. Prerequisite: senior standing and consent of instructor.

133 History Project

2-4 s.h.

Honors credit grade in a special research project, under instructor, prior to consultation with the honors advisor, may be demanded.

Advanced Courses

General Anthropology

133A Japan: the Meiji Tradition

3-4 s.h.

133B Soviet Anthropology

3 s.h.

References: Political

Hussem publication policy, and latest research in the various anthropological fields of human behavior as observed in the Soviet Union, especially for comparison with advanced standing not open to undergraduates who have taken 113B.

137 Anthropological Perspectives on Mental Health

3 s.h.

Prerequisite: 113A or 113B, junior standing or consent of instructor. Some on 91-74.

138A Health and Cultural Diversity

3 s.h.

Prerequisite: 113A or 113B, junior standing or consent of instructor. Some on 91-70.
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 88 non-art credits toward the 124-credit total required for the degree.

The candidate must meet the cultural portion of the College of Liberal Arts' historical-cultural core requirement with 11:37 Roman and Renaissance Art and Theory, and either 11:39 Art in the Western World or 11:42 Art East and West.

Cross-listed courses originating in the School of Art and Art History may not be counted toward fulfilling the general liberal arts core and hour requirements.

Studio Emphasis

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

- History of Art
  - Four intermediate-level courses 12 s.h.
- Studio
  - 1A-1C Colloquium 2 s.h.
  - 1A-3 Basic Drawing 2 s.h.
  - 1A-5 Static Design 2 s.h.
  - 1A-5 Inter-dimensional Concepts 3 s.h.

At least one fundamental course from any of these studio (12 s.h.) areas:
  - Ceramics
  - Design
  - Drawing
  - Metalworking and Jewelry
  - Painting
  - Photography
  - Printmaking
  - Sculpture

No more than 60 semester hours of credit in any courses the School lists will be counted toward the 124-credit total required for the degree.

Regardless of the number of art credits transferred, transfer students majoring in art must complete at least 30 semester hours in art history and 12 semester hours in studio, beyond the basic studio courses and including at least two different studio areas.

Art History Emphasis

Major requirements for the B.A. degree with an emphasis in art history are:

- As advised 9-12 s.h.
- Art History Intermediate and advanced 18 s.h.

Electives

Must raise the total of art courses to a minimum of 38 s.h. and may raise the total to a maximum of 80 s.h. art courses may be taken beyond this level, but do not count toward the B.A. degree.

Non-art credits must include two or more semesters of a second foreign language and at least 16 s.h. in at least three of these areas:
  - Anthropology
  - Classics
  - Drama
  - Language
  - Literature
  - Music
  - Philosophy
  - Religion
  - Sociology

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 "College of Education"), must satisfy these specific requirements:

Bachelor of Fine Arts

The B.F.A. degree is not offered with a major in art history. Studio majors must apply to the program. Application to declare the major requires following completion of at least one semester of work in the major studio minor, but before completion of 50 s.h. in art.

The B.F.A. requires 82 semester hours of credit in School of Art and Art History courses, 82 in non-art courses. In addition to the general education and major requirements listed above for the B.A. degree with studio emphasis, the B.F.A. candidate must complete three courses in major studio beyond the fundamental course, and must complete at least the second semester of coursework in each of two minor studio areas. Art education majors in the B.F.A. program must meet the same teacher certification requirements as those in the B.A. program.

Graduate Programs

A student who wishes to prepare for graduate study by combining the art history and studio areas may do so at the Master of Arts level as indicated in the
following program descriptions for those two areas. Such a combination generally requires one or two additional semesters. Students admitted to the SIS program for graduate study must subsequently meet clearance requirements to be recognized as candidates for the M.A. or M.F.A. degree.

M.A. in Art History

An M.A. student in art history is expected to acquire a broad general knowledge of art history as it is academic and humanistic discipline; become familiar with major periods and movements 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 coursework, with a grade point average of 3.0 or higher; and
- At least one seminar intermediate (101-199 level) course completed with at least a B grade in each of these areas of art history:
  - Ancient (to 300 B.C.)
  - Medieval (300-1300)
  - Renaissance to Baroque (1500-1700)
  - 19th Century to Modern
  - Oriental

Course distribution for the M.A. in art history is as follows:

1) Historical survey: Methodology of Art History and Criticism 3 s.h.

Two art history seminars (with different instructors) 4-6 s.h.

Art history seminars 4-12 s.h.

Studio 0.6 s.h.

Course outside the school 0.9 s.h.

Students without any undergraduate studio training are required to take two courses in different studio fields; students with substantial undergraduate studio training will be exempted from the graduate studio requirement. A student preparing to teach in both the art history and studio arts will take 12 to 18 semester hours of studio coursework, with a minimum of 12 seminar hours in one subject, in addition to the University's undergraduate requirement for a studio major, and will also satisfy the drawing requirement. Studio courses may be taken on an S/U basis.

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

Within the first six hours of graduate work, the M.A. candidate will be expected to demonstrate the ability to read historical writings in an appropriate foreign language, normally German or French, but other languages, including classical, may be acceptable. This requirement may be satisfied by the Graduate School Foreign Language Test (GSFLT), examination by appropriate university of Iowa language department, self-study completion of the first semester of a Ph.D. language reading course, or satisfactory completion (at least a B grade) of the fourth semester of a college or university language course.

Qualification for the M.A. degree requires a comprehensive written and oral examination, broadly covering the entire field of art history. The student must take this examination within the two regularly scheduled examination days following the semester in which he or she completes 30 semester hours of graduate work.

The student must prepare either two written theses, for which three semester hours of credit may be allowed, or a substantial research paper (approximately 20-40 pages in length), which will be filed in the Art Library. The research paper may emerge from either seminar or regular coursework.

M.A. in Studio

The M.A. in studio may be taken with a major in painting, drawing, sculpture, prints, design, photography, ceramics, metalworking and jewelry, or multimedia. The degree requires:

- The B.A. or B.F.A. in art expressive at that offered at The University of Iowa (undergraduate deficiencies, if any, may be made up concurrently with, but in addition to, graduate requirements); and
- A minimum of 30 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, 8 semester hours in the History and Theory of art, and up to 8 semester hours of courses outside art and art history; and
- Studio and written theses

Graduate students who were not admitted to The University of Iowa are required to take at least one drawing course during the first year.

A student preparing to teach in both the studio and art history areas may offer an art history minor of 15 semester hours, including 1CH204 Seminar: Methodology of Art History and Criticism and one other seminar. These hours are in addition to the university's undergraduate requirement for an art history major, and in conjunction with the graduate hours must satisfy the distribution requirements for art history.

M.A. 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 30 semester hours of graduate credit, including 18 semester hours of studio and art history in a ratio of two to one, eight semester hours in art education, and 12 semester hours to be specified after the student commences the program;
- An oral or written examination in art education and a related field; and
- A written thesis based on research in art education or art history or a studio thesis, accompanied by a brief statement of the student's technical, aesthetic and psychological approach.

Master of Fine Arts (studio only)

The M.F.A. may be taken with a studio major in painting, drawing, sculpture, prints, design, photography, ceramics, metalworking and jewelry, or multimedia. The degree requires:

- The 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 six semester hours in a minor Studio field, nine semester hours in art history, and eight semester hours in courses outside the Studio and art education.

Acceptance of studio thesis supervision and advisory responsibility by a member of the staff qualified in the student's chosen field of specialization.

Acceptance of responsibility for supervising the written thesis, where such is assigned, by a member of the art history staff; and
Formation of a faculty committee for review of the candidate's progress and final examination and acceptance of the thesis. Thesel credits earned in an M.A. program are not applicable toward the M.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 one area, an understanding of artistic development, and a knowledge of methods of research within certain specialized areas of world art to be selected by the student in conjunction with appropriate faculty members in the School.

No more than 38 semester hours of credit earned in an M.A. program may be applied toward the 72 semester hours required for the Ph.D. M.F.A. requirements beyond the M.A. program outlined above.

Two art history seminars (with two different instructors) 4-6 s.h.
Additional art history courses 18-28 s.h.
Courses outside the School 0-12 s.h.

Students holding the M.A. from another institution are required to take the School's M.A. comprehensive examination within the first two regularly scheduled examination dates following admission.

Within the first 15 semester hours of graduate work beyond the M.A., the doctoral student must demonstrate ability to read art historical writings in two appropriate foreign languages. For reading in European art, one language will normally be German, for majors in Oriental art, Sanskrit, Chinese, or Japanese may be acceptable. The language examination procedures are as explained in the M.A. program description.

The student must take a comprehensive examination in one major field (six hours) and two minor fields (three hours each) selected by the student in consultation with the advisor and approved by the art history faculty. At least one minor field must be in a discipline other than art history, and one minor field must represent the major; this field may be in a discipline other than the School, e.g., religion, history, or philosophy.

The student must prepare a written dissertation consisting an original scholarly contribution to the field. Up to 12 semester hours of credit toward the art history course requirements may be allowed for dissertation preparation. The dissertation topic must be formally presented for faculty approval. The student is given a final oral examination on the dissertation.

Admission: Studio

Admission procedures for graduate study in art history includes a screening and a final review of applications. First screenings are conducted as screening committee's first regular meeting following receipt of all of the applicant's supporting materials. Contact the School for meeting dates.

painting, ceramics, design, metalworking or jewelry, or multimedia majors must submit slides and/or photographs of their work in their major field, only applicants who are in residence at the University may submit original work in these areas. Drawing majors must submit original drawings (Include figure drawings). Printmaking majors must submit from 6 to 20 original prints and drawings. Photography majors must submit a selection of original photographs. Sculpture majors should submit 8 x 10 black-and-white photos—slides, if color is important—of their work. Studio applicants may also submit examples of their work in other areas, and must submit three letters of recommendation.

Admission: Art History and Art Equation

Applicants to the graduate program in art history must submit a term paper or other examples of ability to write in the field.

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

Applicants must submit three letters of recommendation.

Deadline for receipt of completed applications is June 15 for the fall semester, November 15 for the spring semester, or April 15 for summer registration.

Assistantships and Scholarships

Assistantships paying approximately $3,800 per academic year for 30 hours of departmental duties weekly are intended to graduate students on a competitive basis. Half-tuition assistantships are also available. The award of an assistantship entitles the recipient in the 30-hour tuition rate.

Scholarships, partial or full tuition and assisting in departmental duties require at least a 3.0 cumulative grade-point average. These financial aids are generally awarded to students who have been in evidences for at least one semester, so that faculty members have had an opportunity to observe their performance and potential.

Facilities

School facilities include an art library containing 50,000 volumes; a visual materials library containing 175,000 slides and 80,000 photographs; an engraving printroom; furnaces and equipment for large scale iron and bronze casting procedures, as well as facilities for welding and fabrication of steel sculpture, a well-equipped darkroom; large sufficient large for life-size ceramic sculpture; a large shop for woodcarving, metalworking and industrial design; electronic forming equipment; and video equipment.

While not a School of Art and Art History, the University's Center for New Performing Arts involves School of Art and Art History people in nurse of its activities. The Center was established by the Rockefeller Foundation to encourage collaboration among such areas as art, dance, writing, film, music, and theater.

Courses

Art History

Primary for Undergraduates

1917 Introduction to Preliminary Art 3 s.h.
1918 Introduction to Art 3 s.h.
1919 Introduction to Art History 3 s.h.
1920 Introduction to Modern Art 3 s.h.
1921 Introduction to Modern Art 3 s.h.
1922 Introduction to Modern Art 3 s.h.
1923 Introduction to Modern Art 3 s.h.
1924 Introduction to Modern Art 3 s.h.
1925 Introduction to Modern Art 3 s.h.
1926 Introduction to Modern Art 3 s.h.
1927 Introduction to Modern Art 3 s.h.
1928 Introduction to Modern Art 3 s.h.
1929 Introduction to Modern Art 3 s.h.
1930 Introduction to Modern Art 3 s.h.
1931 Introduction to Modern Art 3 s.h.
1932 Introduction to Modern Art 3 s.h.
1933 Introduction to Modern Art 3 s.h.
1934 Introduction to Modern Art 3 s.h.
1935 Introduction to Modern Art 3 s.h.
1936 Introduction to Modern Art 3 s.h.
1937 Introduction to Modern Art 3 s.h.
1938 Introduction to Modern Art 3 s.h.
1939 Introduction to Modern Art 3 s.h.
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1943 Introduction to Modern Art 3 s.h.
1944 Introduction to Modern Art 3 s.h.
1945 Introduction to Modern Art 3 s.h.
1946 Introduction to Modern Art 3 s.h.
1947 Introduction to Modern Art 3 s.h.
1948 Introduction to Modern Art 3 s.h.
1949 Introduction to Modern Art 3 s.h.
1950 Introduction to Modern Art 3 s.h.
1951 Introduction to Modern Art 3 s.h.
1952 Introduction to Modern Art 3 s.h.
1953 Introduction to Modern Art 3 s.h.
1954 Introduction to Modern Art 3 s.h.
1955 Introduction to Modern Art 3 s.h.
1956 Introduction to Modern Art 3 s.h.
Honors Program
Honors may be earned by special work in 99:140 Experimental Biochemistry, and in research. In the latter case, work completed in 99:150 Research, Independent Study, and presented to the Department as a written report and an oral presentation in 99:150 Seminar. Undergraduate.

Teacher Certification
Biochemistry students planning to qualify for teacher certification should include 75:100 Introduction to Secondary School Teaching, 75:151 Methods: Physical Science, and 75:152 Methods: Biological Science among the College of Education courses taken to meet certification requirements.

Graduate Programs, Facilities, 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.

Botany
Department chair, Robert L. Holley; faculty professors: Robert L. Holley, Robert M. Mullins; associate professors: Wayne F. Delius, Robert W. Croson, Robert W. Head, Martin G. Massey, Jeffrey T. Ackerman, Robert D. Spalding; associate professors: Henry L. Dean, associate professors: Roger D. Hendricks, Robert A. Tannenbaum, Wei-yan Wang.

Botany is a science contributing to our understanding of plants, their structure, reproduction, function, distribution on the earth, diversity, evolution, behavior and relation to human affairs. The Department functions in the preparation of professional botanists for teaching and research positions. Many students majoring in botany are preparing to enter careers in fields related to the plant sciences, such as agriculture, forestry, horticulture, plant breeding, microbiology, and the chemistry of natural products, ecology, medicine, pharmacy, zoology.

The Bachelor of Arts Degree
In addition to the general requirements of the College of Liberal Arts, students majoring in botany are required to take:
2:1 Introduction to Botany 4 s.h.
One course in each of the following areas (20 s.h. total):
Genetics
2:102 Genetics 3-4 s.h.
2:104 Cytogenetics 3 s.h.
2:150 Genetics and Biogenesis of Cell Organelles arr.
Physiology and Cell Biology
2:109 Plant Physiology 4 s.h.
2:110 Plant Physiology 4 s.h.
2:114 Structure and Physiology of Plant Cells 4 s.h.
2:125 Developmental Plant Physiology 3 s.h.
2:150 Developmental Physiology Laboratory 2 s.h.
Biology of Vascular Plants
2:111 Plant Diversity 4 s.h.
2:113 Biology of the Local Flora 4 s.h.
2:113 Plant Anatomy 4 s.h.
2:120 Necrology 4 s.h.
2:121 Quaternary Paleontology 2 s.h.
Biology of Non-Vascular Plants
2:105 Physiology 4 s.h.
2:106 Mycology 4 s.h.
2:107 Mycology 4 s.h.
Taxonomy, Ecology and Evolution
2:101 Plant Taxonomy 4 s.h.
2:111 Plant Ecology 4 s.h.
2:112 Plant-Animal Interactions 3 s.h.
2:131 Evolution 4 s.h.

Two 100-level courses in botany or cognate fields (zoology, biochemistry, microbiology) 8 s.h.
Recommended electives in related fields: 22:15 Mathematics for the Biological Sciences 4 s.h.
22:20 Elementary Functions 3 s.h.
81:114 Principles of Physical Geology 2 s.h.
12:5 Principles of Historical Geology 2 s.h.
99:150 The Chemistry of Biological Materials 3 s.h.
Biology majors are advised to obtain a strong background of courses in zoology.

Students preparing to teach in secondary schools should consult the College of Education regarding requirements for teacher certification.

The Honors Program
An undergraduate program leading to graduation with Honors provides opportunities for participation in independent research projects guided by professional staff members. Prerequisites for admission to the program are senior standing and cumulative grade-point averages of 3.0 overall and 3.5 in botany. In addition to the regular requirements for the B.A. degree, Honors students must complete a one-semester hour of research during the senior year, maintain the grade-point averages required for admission to the program, and pass an Honors examination at the end of the senior year.

Graduate Study
The Department offers graduate training in diverse areas. Many involve interdisciplinary training, and some, such as genetics and ecology, require extensive study outside the Department. For these reasons each student will be assigned a faculty guidance committee to help set goals for graduate training and to plan the course requirements necessary to achieve them. Candidates for advanced degrees in botany are required to perform some services as teaching or research assistants.
The Master's Degree in Botany

Advanced study may be undertaken with emphasis in anatomy, botany, cytology, mycology, physiology, ecology, genetics, development and morphology, phycology, paleobotany, or taxonomy. The master's degree may be earned by completing at least 30 semester hours of graduate study, including six semester hours in 2225 Research Botany. The preparation of a thesis is optional.

Each student must:
- Submit a program of study to be approved by a guidance committee.
- Complete at least 16 semester hours of graduate courses in botany, as prescribed by the guidance committee, and including no more than six semester hours of 2225 Research Botany and 2229 Thesis Botany.
- Achieve a grade-point average of 3.0 or better on all courses, other than 2225, attempted up to the time of the final examination; and
- Take a written and oral examination covering coursework and research experience.

Master's Degree in Biology

A student who has been regularly admitted to a graduate program in either the Department of Botany or the Department of Zoology may elect a course of study leading to the Master's degree in biology. The degree requires at least 34 hours of graduate study without thesis, or 30 hours with thesis. The student must take 4-5 s.h. of research, and thesis candidacy must take at least 6 s.h. of research. Research credit can be earned by taking 2225 Research Botany, 37:199 Introduction to Research and 37:500 Independent Study in Zoology.

Each student must submit a program of study to be approved by the department in which the student is enrolled. The program must include at least 8 s.h. of graduate courses in each of the two departments, exclusive of research, and may include 6-10 s.h. taken in supportive areas including biochemistry, microbiology, geology, and mathematics. The student must achieve a 3.0 grade-point average in all courses other than research attempted at the time of the final examination, and pass a written comprehensive final examination covering the graduate program. For thesis candidates, there is also an oral examination, based mainly on the work reported in the thesis.

Doctor of Philosophy

Specialization may be in any one of the fields listed under the master's degree. At least 72 semester hours of graduate credit are required.

The comprehensive examination tests the progress of students in understanding concepts and ideas in various subdivisions of botany, with some coordination in fields closely associated with the research specialty.

The thesis must be submitted to the examining committee at least two weeks before the examination. A final examination consists of an oral defense of the methods, results, interpretations, and conclusions presented in the dissertation.

Graduate Admission

General Requirements

Prospective graduate students should be thoroughly familiar with the requirements of the Graduate College. Applicants should submit Graduate Record Examination (GRE) aptitude test scores with their applications, if possible.

Departmental Requirements

If the entering student has little or no training in botany or biology, some introductory coursework will be required in accordance with the academic needs of the individual. In addition, mathematics at the level of analytic geometry and a year of inorganic chemistry are usually required of entering students. Courses prescribed by the student's guidance committee should be made up during the first year of residence; these courses may be taken for reduced graduate credit. Students entering with a B.A. or B.S. degree from an accredited college or university should submit:

Scores on the GRE verbal and quantitative tests adding up to at least 100.

A transcript of undergraduate record showing a grade-point average on all courses attempted equal to 3.0, and letters of recommendation from at least three of their professors.

Students entering with an M.S. degree should submit:

Scores on the GRE verbal and quantitative tests adding up to at least 120.

A transcript showing a grade-point average equal to 3.4 on all courses attempted at the graduate level; and

Letters of recommendation from at least three of their professors.

The numerical requirements listed above are not absolute. For example, a GRE score somewhat below the designated number may be compensated for by a high level of academic achievement as an undergraduate or a graduate student.

Special Facilities and Activities

Students conducting research projects requiring the cultivation of plants have access to greenhouses and special culture rooms with controlled environment. A plant physiology laboratory is available, with associated greenhouses.

There is an excellent departmental library in the building.

A number of research laboratories are equipped with standard and more sophisticated apparatus for research in growth regulation, photosynthesis, paleobotany, molecular genetics, cytogenetics, ecophysiology, physiological botany, morphology, and cell biology. There are two transmission electron microscopes in a special laboratory. Students and staff may use the Scanning Electron Microscope Laboratory in the Zoology Building.

An herbarium for research and general study includes collections of more than 200,000 specimens. These standard specimens include extensive collections of seed plants and ferns from Iowa and the Midwest, special research specimens from Mexico and Central America, the Conard herbarium of lycophytes and the Martin collection of fungi and algae molds.

Within a few miles of the campus, a flora will preserve is available for field trips and experimental projects. A botanical field station at Iowa Lakes Laboratory at "Estacion Rosario" is usually available to those students at Iowa who are engaged in scientific studies in botany, limnology, physiology, ecological study and plant taxonomy. Students frequently participate in field expeditions in the Canadian
2:178 Advanced Genetics
4.5 h.
Prerequisite 2:175 or 2:176.

2:188 Experimental Plant Physiology
4.5 h.
Lectures, laboratory exercises, and discussion of current and classic research in plant physiology, including aspects of the photosynthetic apparatus, plant anatomy, and form function and interactions. Prerequisites 2:211 or 3:211, and consent of instructor.

Primary for Graduates

2:233 Advanced Plant Physiology
4.5 h.
Normal and abnormal physiology of plants. Reading and reviewing. Prerequisites 2:178 or 2:179 or equivalent and one year of college chemistry or physics.

2:211 Seminar: Genetics
4 h.
Professional seminar with lectures, discussions and literature reviews on special topics in genetics may be repeated for credit.

2:212 Seminar: Plant Physiology
4 h.
Lectures, discussions and seminars on selected topics in plant physiology, a specific topic will be announced each year. May be repeated for credit. Prerequisites 2:172 or 2:178 or consent of the instructor. Same as 3:212, 4:212, 5:212.

2:214 Techniques in Electron Optical Microscopy
4 h.
Lecture and laboratory intended for advanced graduate students with definite plans to use techniques of electron microscopy in their research. Theoretical and practical aspects of tissue preparation, thin sectioning, electron microscopy, quantitative microanalysis, and electron microscopy and the microscope. Prerequisites 2:214 and consent of instructor. Same as 3:214, 4:214, 5:214.

2:220 Advanced Electron Optical Research Techniques
4 h.
Lectures and laboratory in specialized techniques of transmission microscopy. Includes theory and practice of autoradiography, freeze-fracturing, cryophotonics, and other new techniques of transmission electron microscopy and electron diffraction. Prerequisites 2:120 or equivalent and consent of instructor. Same as 3:220, 4:220, 5:220.

2:321 Seminar: Topics in Biological Physics
4 h.
Requirements vary but one hour of credit for bachelor's degree majors. Open to junior majors in biology and graduate students in other departments.

2:325 Research: Balay
4 h.

Chemistry

Department chair; H. Bruce Friesend

Chemistry is the basic science which underlies the study of molecular transformation. An understanding of the principles of chemistry is important not only for chemists but also for persons interested in all the biological and materials sciences.

Undergraduate Programs

There are two bachelor's degree programs in the Chemistry Department. The Bachelor of Science curriculum is the preprofessional training program for students who intend to find employment as chemists. It also provides the prerequisites for graduate work in chemistry and related sciences. The Bachelor of Arts curriculum provides some concentration in fundamental chemistry but with a wider choice of electives. This degree provides a good background for students who plan to enter medicine, dentistry and related professions, and for students who plan to do advanced work in such fields as biochemistry, microbiology, pharmacology, physiology, medical chemistry, oceanography, geochimistry and metallurgy.

Chemistry courses is the first two years of the bachelor's program also provide a good background in general and organic chemistry for biological science majors. General science majors should select their chemistry courses from those listed in the B.A. curriculum: 4:101 Elementary Quantitative Analysis and 4:130 Physical Chemistry for the Life Sciences may also be included in the general science curriculum. Core courses 11:25 (offered jointly with the Physics Department) and 11:26 provide an introduction to physical science for the non-science major.

Chemistry majors should attempt to complete courses in organic chemistry, general, and introductory inorganic prior to their junior year. A special undergraduate advisor is available to help students design their own programs.

The Bachelor of Science Degree

The B.S. curriculum in chemistry is the professional training program leading to employment in the chemical industry and in government research laboratories. The present and future demand for B.S. chemists for research, control or process development work is excellent. The B.S. program also provides all of the prerequisites for graduate work in chemistry or biochemistry.

Chemistry Courses

4:13-14 Principles of Chemistry I-II
4:18-19 Physical Chemistry Laboratory I-II
5:30 Chemistry 4:121-122 Organic Chemistry I-II
5:111-112 Analytical Chemistry I-II
5:131-132 Physical Chemistry I-II
5:141-142 Intermediate Physical Chemistry
5:145-146 Advanced Chemistry Laboratory I-II
5:170 Advanced Inorganic Chemistry
4:161 Introduction to Research
4:162 Undergraduate Research Project

Mathematics

Selected courses to include Integral calculus (22M-52-56), Engineering Calculus I-II (recom- mended, 22M-52-56 Calculus I-II acceptable.)

Physics

29:17-18 Introductory Physics I-II recommended, 29:11-12 College Physics acceptable.

Foreign Languages

(Two semesters of German, French, or Russian)

Electives

Advanced science elective courses plus credit earned in senior research must total a minimum of five semester hours. Advanced science electives may be chosen in the areas of chemistry, mathematics, computer science, physics, engineering, nuclear science, biochemistry, microbiology, pharmacology, botany, sociology, geology, and physiology.

The Bachelor of Arts Degree

The B.A. curriculum in chemistry provides a general education with some concentration in fundamental chemistry but with wider choice of electives. Students electing the program may qualify for high school teaching, providing the required hours of education are elected. By choosing the
Graduate Study
The Department offers a full program of courses, research and seminars leading to the M.S. and Ph.D. degrees in the areas of analytical, inorganic, organic and physical chemistry and in chemical physics. Students seeking the Ph.D. degree in chemistry are required to demonstrate competence in each of four areas of chemistry. This can be accomplished by receiving a minimum grade-point index of 2.5 in the courses listed below or by departmental examination. Candidates for the M.S. degree are required to obtain minimum grades of "C" in three of these courses or to meet the requirement by examination.

- 4170 Advanced Inorganic Chemistry
- 4171 Advanced Analytical Chemistry
- 4172 Advanced Organic Chemistry
- 4173 Advanced Physical Chemistry

Enrolling students will be given the opportunity to take examination examinations to demonstrate competence in the areas listed above. These exams will be given at the opening of the academic year and will cover material equivalent to that given in the courses listed.

Master of Science Programs
The Department offers the M.S. degree, with or without thesis, in the areas represented above. Both programs require at least 30 semester hours. In the thesis program, this may include no more than eight hours in research.

The oral examination for the M.S. degree with thesis consists of a defense of the written thesis. A minimum grade-point index of 2.5 is required for admission to the master's examination. The examination for the M.S. degree without thesis covers graduate coursework.

Doctor of Philosophy Program
A program of study for the Ph.D. degree in the areas previously listed consists of a minimum of 72 semester hours of graduate work. The program of study includes the previously prescribed courses and courses in the major field of interest. The student must present a thesis covering the research.

An oral comprehensive examination in defense of a proposed research proposition is required for candidacy for the Ph.D. degree. Students who have demonstrated the required competence in the four areas of chemistry and who have maintained a minimum grade-point index of 2.75 are admitted to the oral examination upon presentation and preliminary approval of their research proposal.

A final oral examination is required of all candidates for the Ph.D. degree. The Ph.D. thesis and a manuscript of the publishable portion of the thesis must be defended satisfactorily before an examining committee.

Interdisciplinary Programs
The Department of Chemistry cooperates in interdisciplinary programs in applied mathematical sciences and in chemical physics. (See "Graduate College." Students with undergraduate degrees in chemistry, physics, mathematics or engineering are eligible.

Languages
The Department does not require a proficiency in foreign languages as a part of the training for an advanced degree. However, students majoring in organic chemistry are required to demonstrate competence in the reading of German.

Teaching
The Department requires all graduate students in chemistry to teach as part of their training for an advanced degree.

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. Most assistantships and other appointments for the following academic year are filled by April 1, but there are occasional openings at the beginning of the second semester.
Facilities
The Department is housed in a five-story building containing four lecture rooms, 21 undergraduate laboratories, 48 graduate research laboratories and a number of special purpose instructional 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, textbooks and complete volumes of chemical and chemical engineering journals, and subscribes to 300 current scientific journals.

Courses

Primary for Undergraduates

"Elements served to make the more that one year of chemistry

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Courses
Undergraduate Program

A training in classics is primarily humanistic, for it concentrates upon the aspects of human achievement which are the foundation of civilization. An undergraduate degree in classics gives a solid foundation for law, history, art, philosophy and religion, as well as for advanced work in classics. Recent graduates have become secondary and university teachers, lawyers, doctors, historians, museum curators and bankers. The Department offers majors in Greek, Latin, classics (combines the two) and, jointly with other departments, ancient civilization.

Major in Greek

Thirty semester hours minimum are required, of which 24 must be in Greek language courses, and which must include the following courses or their equivalents:

141-12 Greek Grammar 3 sh.
141-13 Second-Year Greek 6 sh.
141-12 Homer and Hesiod I 6 sh.
141-161 Greece and Persia 3 sh.
141-162 Fifth-Century Athens 3 sh.
141-171 Elementary Greek Composition 3 sh.

A student majoring in Greek graduate knowing not only how to read the Greek language, but also knowing some of the major works of Greek literature, and something of the history of ancient Greece and the Near East of the seventh through the fifth centuries B.C., when most of the modern notions of political, artistic and social life began.

Major in Latin

Thirty semester hours minimum are required, of which 24 must be in Latin language courses, and which must include the following courses or their equivalents:

201-1-2 Elementary Latin 8 sh.
(201-15 Latin Review is equivalent to 201-2)
201-16-17 Intermediate Latin 8 sh.
201-20 Age of Cicero 3 sh.
50-20 Age of Augustus 3 sh.
201-171 Elementary Latin Composition 3 sh.
Two Latin language courses, 100-level or above 6 sh.

A student majoring in Latin will graduate knowing how to read Latin as well as understanding some aspects of the Roman republic and empire when Rome established its hegemony over the Mediterranean basin, laid the foundation for the Western World, and transmitted the culture of Greece to the East.

Major in Classics (Greek and Latin)

Thirty-six semester hours minimum are required, of which 30 must be in Greek and Latin language courses, and which must include 14-1-2, 14-11-12, 20-1-2, and 20-16-17, or their equivalents. The student will then choose a language of concentration and will take at least the third-year courses (14-121-122 or 20-91-92) and the elementary composition course (14-171 or 20-171), or their equivalents, in that language of concentration.

Major in Ancient Civilization

(Sponsored by the School of Art and Art History and the departments of Classics, History, and Religion)

The major concentrates on the ancient civilizations of the Mediterranean world and draws on courses currently offered by various departments of the University. It is not primarily a preparation for a graduate degree program; nevertheless, it could be used as a very sound basis for preparation for graduate work in the second and third year of college level courses. In addition to the normal college requirements for the B.A. degree, the following are the specific requirements of the major:

Ancient art 6 sh.
Ancient history 6 sh.
Ancient philosophy or religion 6 sh.
Classics—either courses in translation or upper-division undergraduate courses in Latin, or in Greek 6 sh.

Appropriate courses in art, history, philosophy, religion or linguistics 3 sh.
Senior seminar 3 sh.

Core Requirements

Undergraduates who major in Greek, Latin, classics, or ancient civilization are excused from four semester hours of the literature requirement for the College of Liberal Arts, but must complete 11:1 The Interpretation of Literature. Ancient civili-
tion majors' core requirements in the historical-cultural sequence are limited to four semester hours.

Honors
For exceptional seniors who attained a 3.5 grade-point average in their first three years of classes, two courses are offered in Honors reading, one each semester of the senior year, for three semester hours of credit each semester. The readings and discussions are on either an ancient author or a field in ancient history or literature chosen by the student and the instructor. During the first semester the student presents an essay every other week; at the end of the second semester the student presents a long paper which is examined by at least three members of the department.

Graduate Program
For the general requirements of the Graduate College, including the comprehensive examinations, see "Graduate College."
Graduate students in classics may include in their program no more than six semester hours of courses numbered 101-180 and six semester hours of courses numbered 181-199, for a total of six credit hours from courses numbered 101-199.

M.A. in Greek, Latin, or Classics
A minimum of 30 semester hours of courses numbered 101 and above is required. Candidates in Latin who have no Greek are normally expected to include at least elementary Greek in their programs. In addition, the course 14201 Proseminar: Introduction to Advanced Study (three semester hours) is required. Special programs will be arranged for advanced students who wish to prepare for teaching classics in English (general education courses, world literature, etc.).

Ph.D. in Classics
The degree requires an ability to read and write Greek and Latin, as tested in qualifying examinations; the reading of considerable portions of Greek and Latin literature as outlined on a reading list prepared by the student and his or her advisor and approved by the Department; a tested reading knowledge of German and French; passing written comprehensive examinations on ancient history, on Greek and Latin literature, and on a special field or author, together with a one-hour general oral examination; and writing and defending a dissertation embodying original research or interpretation of a classical subject. Required courses are:
*14-204-205 Rapid Readings in Greek
*14-204-205 Rapid Readings in Latin
*14-172 Advanced Greek Composition
*20-172 Advanced Latin Composition
Ancient art above 200 level
14-201 Proseminar: Introduction to Advanced Study
20/295 Sanskrit I or II
20-203 Indo-European Philology
14-206 Greek Paleography
14-281-282 Greek Seminar
14-291-292 Latin Seminar
*(May be satisfied by examination.)
*(One of the seminars normally is taken after comprehensive examinations.)

Special Facilities
Extensive collections of classical texts and periodicals in the University Library and the Art Library facilitate research in the major areas of Greek and Roman civilization. The Department has a varied collection of slides on classical subjects, and a small library.
Associated with the Department, the Classical Museum contains a valuable collection of coins, vases and frescoes in bronze from Mycenae, Pompeii and Herculaneum.
The University is a supporting institution of the American School of Classical Studies at Athens, the American Academy in Rome, and the Vagelion Society, thereby making the facilities of those schools available to its faculty and graduates.
The University is also a contributing member of an international group which is sponsoring the uncovering and publication of information about the ancient mosaic of Tunis; annually a team from the University goes to Tunisia to work on this project.

Courses
Greek
For Undergraduates Only
Students wishing to study the S.A. foreign language requirement by studying Greek should take 14-201 Greek and 14-202 Greek.
14-1 Elementary Greek 4 s.h.
Foundations of Attic Greek and basic concepts of Greek civilization.
14-2 Elementary Greek 4 s.h.
Continuation of 14-1, which is a prerequisite; selections from Greek authors are read.
14-9 New Testament in Greek 3 s.h.
Rapid reading of narratives from the Gospels. May be taken without 14-2.
14-11 Saul and David 3 s.h.
Reading of select texts from the Psalms. Prerequisite: 14-9 or equivalent.
14-12 Samuel-First Kings 3 s.h.
Continuation of 14-1, which is a prerequisite.
For Undergraduates and Graduates
14-121 Homer and Iliad I 3 s.h.
For first-year students; selections from Homer's Iliad and Odyssey, and Iron Age literature and Homeric epics read in Greek, complete works read in English.
14-122 Homer and Iliad II 3 s.h.
Continuation of 14-11, which is a prerequisite.
14-181 Sirens and Penises 3 s.h.
For students in the fourth year of Greek, and those who, having studied the Homeric epics, wish to continue their study of ancient Greek literature.
14-182 Homer and Iliad III 3 s.h.
Continuation of 14-12, which is a prerequisite.
14-176 Greek and Roman Civilization 3 s.h.
Changing intellectual climate (c. 9th century B.C. to 4th century A.D.); introduction of Greek elements into Latin; development of Roman civilization.

Greek 176-Century Athens 3 s.h.
Changing intellectual climate (c. 9th century B.C. to 4th century A.D.); introduction of Greek elements into Latin; development of Roman civilization.
14-177 Elementary Greek Composition 3 s.h.
Principals of morphology and syntax and Greek sentence structure; composition of short passages in Greek.
14-178 Advanced Greek Composition 3 s.h.
Practice in writing literary Greek prose with style of Lewis and Currer Bell.
14-194 Survey of Hellenistic, Roman, and Byzantine Literature 3 s.h.
Special subject courses in literature, philosophy and religion.
14-195 Greek for Classical Philology 3 s.h.
Special subject courses in literature, philosophy and religion.
14-196 Greek for Classical Philology 3 s.h.
Special subject courses in literature, philosophy and religion.
14-197 Greek for Classical Philology 3 s.h.
Special subject courses in literature, philosophy and religion.
For Graduates

14:291 Presentation: Introduction to Advanced Study 2 s.h.
Arts and sciences; history, philosophy, critical

14:297 Late European Philosophy 2 s.h.

14:299 Rapid Readings in Greek 3 s.h.

14:300 Rapid Readings in Latin 3 s.h.

14:302 Greek Philosophy 3 s.h.

14:304 Greek Palaeography 3 s.h.

14:310 Study of Greek poetry, manuscripts, early printed texts,

14:320 Supreme Proofs in Ancient Art 3 s.h.

14:323 Greek Lyric Poetry 3 s.h.

14:327 Homer 3 s.h.

14:328 Greek Lyric Poetry 3 s.h.

14:332 Spurious 2 s.h.

14:334 Aristotle 2 s.h.

14:336 Plato's Republic 3 s.h.

14:339 Examination of Plato's presentation of justice. 3 s.h.

14:341 Aristotelian 3 s.h.

14:342 Theophrastus 3 s.h.

14:345 Aristotle's Political Writings 3 s.h.

14:348 Art, 3 s.h.

14:352 Greek Philosophy 3 s.h.

14:354 Greek Seminar 3 s.h.

14:358 Greek Thesis 3 s.h.

Latin

For Undergraduates Only

Students may elect 21:01 and 21:02 as part of their

20:110 Elementary Latin 4 s.h.

20:111 Elementary Latin 4 s.h.

20:112 Elementary Latin 4 s.h.

20:114 Intermediate Latin I 3 s.h.

20:115 Intermediate Latin II 3 s.h.

20:116 Intermediate Latin I 3 s.h.

20:117 Intermediate Latin II 3 s.h.

20:118 Upper-Intermediate 3 s.h.

20:119 Advanced Latin 3 s.h.

20:120 Advanced Latin 3 s.h.

20:121 Advanced Latin 3 s.h.

20:122 Advanced Latin 3 s.h.

20:123 Advanced Latin 3 s.h.

20:124 Advanced Latin 3 s.h.

20:125 Advanced Latin 3 s.h.

20:126 Advanced Latin 3 s.h.

20:127 Advanced Latin 3 s.h.

20:128 Advanced Latin 3 s.h.

20:129 Advanced Latin 3 s.h.

20:130 Advanced Latin 3 s.h.

20:131 Advanced Latin 3 s.h.

20:132 Advanced Latin 3 s.h.

20:133 Advanced Latin 3 s.h.

20:134 Advanced Latin 3 s.h.

20:135 Advanced Latin 3 s.h.

20:136 Advanced Latin 3 s.h.

20:137 Advanced Latin 3 s.h.

20:138 Advanced Latin 3 s.h.

20:139 Advanced Latin 3 s.h.

20:140 Advanced Latin 3 s.h.

20:141 Advanced Latin 3 s.h.

20:142 Advanced Latin 3 s.h.

20:143 Advanced Latin 3 s.h.

20:144 Advanced Latin 3 s.h.

20:145 Advanced Latin 3 s.h.

20:146 Advanced Latin 3 s.h.

20:147 Advanced Latin 3 s.h.

20:148 Advanced Latin 3 s.h.

20:149 Advanced Latin 3 s.h.

20:150 Private Tutorial 1-3 s.h.

20:151 Private Assignments 1-3 s.h.

20:152 Special Studies 1-3 s.h.

20:154 Advanced Reading 1-3 s.h.

20:155 Again readings in Latin 1 s.h.

20:156 Special Studies 1-3 s.h.

20:157 Early Latin 3 s.h.

20:158 Slowus 3 s.h.

20:226 Chaucer Lectures 3 s.h.

20:227 Chaucer Philosophical Works 3 s.h.

20:228 Chaucer's poetry and prose 3 s.h.

20:229 Chaucer's poetry and prose 3 s.h.

20:230 Chaucer's poetry and prose 3 s.h.

20:231 Chaucer's poetry and prose 3 s.h.

20:232 Chaucer's poetry and prose 3 s.h.

20:233 Chaucer's poetry and prose 3 s.h.

20:234 Chaucer's poetry and prose 3 s.h.

20:235 Chaucer's poetry and prose 3 s.h.

20:236 Chaucer's poetry and prose 3 s.h.

20:237 Chaucer's poetry and prose 3 s.h.

20:238 Chaucer's poetry and prose 3 s.h.

20:239 Chaucer's poetry and prose 3 s.h.

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20:241 Chaucer's poetry and prose 3 s.h.

20:242 Chaucer's poetry and prose 3 s.h.

20:243 Chaucer's poetry and prose 3 s.h.

20:244 Chaucer's poetry and prose 3 s.h.

20:245 Chaucer's poetry and prose 3 s.h.
Classics in English

[no knowledge of Greek or Latin required]

For Undergraduates and Graduates

14:13 The Classical Views 4 s.h.
Reading and discussion of the text, "The Assay," and the "Discourses of Plutarch" with the help of the traditional Greek and Latin texts. Same as 11:13.

14:26 Introduction to Ancient Art 3 s.h.
Art and architecture of Mediterranean civilization from Minos times to age of Constantine. Prerequisite: 11:27, 11:36 or permission of instructor. Same as 11:25.

14:12 Greek Civilization 2-3 s.h.
Lives, art, and history of the ancient world, especially Rome, and its relevance to modern times.

14:10 Women in Antiquity 2-3 s.h.
Examination of roles played and function of women in ancient Greek and Roman society; selected works of ancient authors, male and female, and modern critical readings in English.

14:10 Political Propaganda in Ancient Rome and Poetry 3 s.h.
Literature of the Roman republic and empire, including contributions of orators and historians, and other Pan-Hellenic movement and Graeco-Macedonian influences.

14:17 Greek Literature in Translation 3 s.h.

14:18 Books in Translation 3 s.h.
Greek classics as an art form, with analysis of selected plays and history of Greek theater. Same as 11:16.

14:19 Greek Jewish Literature 3 s.h.
Study, in English translation, of selected works written originally in Graeco-Hellenistic, Latin, Aramaic, and Hebrew styles, with particular attention to the historical setting during the Greek and Roman periods.

14:11 Early Greek Art 3 s.h.
Architects, sculptors, painters and other artists from Mycenaean to Hellenistic times. Same as 11:12.

14:11 Classical Greek Art 3 s.h.
Creation of 11:12. Same as 11:12.

14:15 Classical Mythology 3 s.h.
Lectures on classical myths and legends for comparative purposes, including traditional methods of mythological research. Same as 11:15.

14:16 Early Christian and Early Byzantine Art 3 s.h.
Same as 11:16, 12:17.

14:14 Greek Vase Painting 3 s.h.
Survey of Greek painted pottery from Protogeometric to Hellenistic times. Same as 11:14.

14:11 Scientific and Medieval Greek and Latin Literature 3 s.h.
Principles in development of scientific and medical terminology from Greek and Latin works.

14:11 Byzantine Art 3 s.h.
Same as 11:11.

14:17 Medieval Art 3 s.h.
Same as 11:12.

14:19 Greek and Latin for Vocabulary Building 3 s.h.
Intensive pronunciation of Greek and Latin error, phrases, and suffixes, analysis of word roots, principles of English word-formation, liturgies and ornate, opportunities for student's questions and participation. Six or eight lab sessions, one final examination. Pass/fail permitted. Same as 11:19.

14:20 Roman Civilities 2-3 s.h.
Lives, art, and history of the ancient world, especially Rome, and its relevance to modern times.

14:20 Medieval and Technical Terminology 3 s.h.
Computer-assisted instruction in medieval and scientific terms derived from Greek and Latin, introductory reading no longer necessary, students select their own pace and proceed at their own rate. Same as 11:20.

14:20 Roman Empire 2-3 s.h.
Lectures and discussions of changes in society, religion, economics, and government from 750 B.C. to A.D. Same as 11:20.

14:20 Roman Empire in Translation 3 s.h.
Roman classics as an art form, with analysis of selected documents and legacies and the history of Roman literature.

14:16 Early Romans Art 3 s.h.
Romans architecture, sculpture, painting and mosaic art, sculpture, and fine arts period. Same as 11:16.

14:21 Roman Empire 3 s.h.
Same as 11:16.

14:13 Religion and Death in Antiquity 3 s.h.
Investigation of the place of power in the early religion of Greece and Rome. Rituals influencing impact on Roman-Roman culture outside during the time of the Christian period. Same as 11:13.

14:11 Late Roman Art 3 s.h.
Same as 11:11.

14:20 Comparative Romance Linguistics 3 s.h.
Same as 11:20.

Communication Studies

Program chair: John White Beavers

Program director: L. F. W. Games (Linguistics), L. G. Moore (Linguistics), L. K. Rose (Linguistics), L. S. K. Rose (Linguistics), L. T. Rose (Linguistics)

In Communication Studies, the phenomenon of primary interest is instrumental symbolic behavior: Important questions include: How do we use to learn symbols? How did symbol usage differ across cultures and subcultures? How are linguistic and nonlinguistic symbols expressed in various cultures? What are the effects of linguistic and nonlinguistic symbols on attitudes and behaviors? What evaluative criteria are appropriate for various classes of symbol-using behavior? Although methods are appropriate for study of the communicating arts. The scientific approach includes hypothesis generation, theory building, measurement, and other standard features of social science. Communication study can also be explored with the critical and speculative tools of historians and philosophers.

The undergraduate program requires a minimum of 27 semester hours to be planned in consultation with an adviser so as to emphasize multidisciplinary approaches to communication. Four courses are required for all majors: 120:60 or 120:101; 120:80 or 120:91 or 120:92; 120:100 or 120:102; and 120:99.

Courses

120:60 Elements of Linguistics 3 s.h.
Same as 120:63. 120:60.

120:60 Communication and Contemporary Culture 3 s.h.
Same as 112. Same as 120:63. 120:60.

120:61 Mass Media and Mass Society 3 s.h.
Same as 120:65.

120:62 Communication Theory in Everyday Life 3 s.h.
Same as 120:65.

120:68 Hours in Communication Studies 3 s.h.
Same as 120:60.

120:69 Social Semiotics 1 s.h.
Introduction and exercises in communication research methods, sampling, current analysis, course procedure, others. Fundamentals of various methods in a common project.

120:69 Cultural and Historical Foundations of Communication 3 s.h.
Same as 120:60.

120:92 Cultural and Historical Foundations of Communication 3 s.h.
Same as 120:69.

Comparative Literature

Program chair: Paul Hartwell

Program director: V. C. F. Storl (Linguistics), J. A. W. Carney (Linguistics), J. E. Koerner (Linguistics), J. F. P. M. Wright (Linguistics), J. T. H. S. Nettl (Linguistics)

Comparative Literature Program is an interdisciplinary and international study and to provide a basis for intensive work in literature, literary theory and critical method. Undergraduates interested in comparative
Master of Arts Degree

The degree of Master of Arts in comparative literature requires 36 semester hours of study in literature in an international context, with consent both for two or three national literatures and for the theory and general study of literature as a single phenomenon. The student in consultation with faculty advisors combines courses in the Program and in the individual departments to design a coherent course of study.

Doctor of Philosophy Degree

Students seeking the doctorate in comparative literature study at least three literatures. One literature is studied in historical depth together with limited areas of specialization in two other literatures. An interdisciplinary area of concentration is encouraged. All candidates devote a portion of their program to comparative study which brings the several areas into focus. Specific areas and concentrations chosen by the student in consultation with appropriate faculty members.

Dissertation

The Ph.D. dissertation should demonstrate the candidate's ability to write a substantial thesis of scholarship or criticism. A translation of a work of sufficient significance and linguistic complexity, preceded by a critical introduction, may be acceptable as a dissertation. The final oral examination centers on the dissertation and its background.

Admission

A 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 prerequisite for doctoral study. Students are strongly encouraged to offer at least one classical language.

For further information, the procedural guide for graduate students in Comparative Literature is available by request from the Program office.

Courses

Upper Division

46:196 European Literature of the 19th Century 3 s.h.
46:199 Literature in Europe

46:201 Literature I 3 s.h.
46:202 Literature II 3 s.h.
46:203 Literary Studies 3 s.h.
46:204 Literary Criticism 3 s.h.
46:210 History and Theory of Translation 3 s.h.
46:211 Survey of European Literature 3 s.h.
46:212 Survey of Italian Literature 3 s.h.
46:213 Survey of African Literature 3 s.h.
46:214 Survey of Asian Literature 3 s.h.
46:215 Survey of Middle Eastern Studies 3 s.h.
46:216 Survey of Latin American Literature 3 s.h.
46:217 Survey of Comparative Literature 3 s.h.
46:218 Survey of African American Literature 3 s.h.
46:219 Survey of Latin American Literature 3 s.h.
46:220 Survey of Asian Literature 3 s.h.
46:221 Survey of Comparative Literature 3 s.h.
46:222 Survey of Latin American Literature 3 s.h.
46:223 Survey of African American Literature 3 s.h.
46:224 Survey of Middle Eastern Studies 3 s.h.
46:225 Survey of Asian Literature 3 s.h.
46:226 Survey of African Literature 3 s.h.
46:227 Survey of Latin American Literature 3 s.h.
46:228 Survey of Comparative Literature 3 s.h.
46:229 Survey of African American Literature 3 s.h.
46:230 Survey of Middle Eastern Studies 3 s.h.
46:231 Survey of Asian Literature 3 s.h.
46:232 Survey of Latin American Literature 3 s.h.
46:233 Survey of African American Literature 3 s.h.
46:234 Survey of Middle Eastern Studies 3 s.h.
46:235 Survey of Asian Literature 3 s.h.
46:236 Survey of Latin American Literature 3 s.h.
46:237 Survey of African American Literature 3 s.h.
46:238 Survey of Middle Eastern Studies 3 s.h.
46:239 Survey of Asian Literature 3 s.h.
46:240 Survey of Latin American Literature 3 s.h.
46:241 Survey of African American Literature 3 s.h.
46:242 Survey of Middle Eastern Studies 3 s.h.
46:243 Survey of Asian Literature 3 s.h.
46:244 Survey of Latin American Literature 3 s.h.
46:245 Survey of African American Literature 3 s.h.
46:246 Survey of Middle Eastern Studies 3 s.h.
46:247 Survey of Asian Literature 3 s.h.
46:248 Survey of Latin American Literature 3 s.h.
46:249 Survey of African American Literature 3 s.h.
46:250 Survey of Middle Eastern Studies 3 s.h.
46:251 Survey of Asian Literature 3 s.h.
46:252 Survey of Latin American Literature 3 s.h.
46:253 Survey of African American Literature 3 s.h.
46:254 Survey of Middle Eastern Studies 3 s.h.
46:255 Survey of Asian Literature 3 s.h.
46:256 Survey of Latin American Literature 3 s.h.
46:257 Survey of African American Literature 3 s.h.
46:258 Survey of Middle Eastern Studies 3 s.h.
46:259 Survey of Asian Literature 3 s.h.
46:260 Survey of Latin American Literature 3 s.h.
46:261 Survey of African American Literature 3 s.h.
46:262 Survey of Middle Eastern Studies 3 s.h.
46:263 Survey of Asian Literature 3 s.h.
46:264 Survey of Latin American Literature 3 s.h.
46:265 Survey of African American Literature 3 s.h.
46:266 Survey of Middle Eastern Studies 3 s.h.
46:267 Survey of Asian Literature 3 s.h.
46:268 Survey of Latin American Literature 3 s.h.
Undergraduate Programs

The major purpose of the Department of East Asian Languages and Literature is to provide general courses through which all Iowans have the opportunity to acquire knowledge and understanding of Asian cultures.

The Department offers two programs leading to the B.A., one primarily for those interested in studying the culture and civilization of traditional and modern Asia, and the other intended for those who wish to concentrate on developing competence in one of the Asian languages offered. Graduates of either program will find careers readily available in government, banking and commerce in America and Asia. The programs will also provide an excellent background for advanced study in literature, history, art, religion, political science, geography, anthropology, or sociology. Career opportunities in business, government, and teaching are plentiful at present and there is every indication that they will increase markedly in the next decade as trade and cultural exchanges with Asia develop further.

Undergraduate majors are exempted from the literature core requirement of the College of Liberal Arts; the foreign language requirement is met by study of an Asian language.

The Program in Asian Studies

This is a multidisciplinary program designed to introduce students to East and South Asian cultures, both modern and traditional, and to contemporary political and social problems in Asia. Asian historians join selected faculty in language and literature in teaching the courses. Each student selects a single area (e.g., China, Japan, or South Asia) upon which to concentrate for the study of the Asian language.

Required courses:
39:55-56 Civilizations of Asia 8 s.h.
39:10-20 Asian Humanities 8 s.h.

Asian language study:
For students of Chinese studies: 39:8-11 First Year Second Year Chinese 24 s.h.
For students of Japanese studies:
39:8-11 First-Second Year
Japanese
24 s.h.
For students of South Asian studies:
39:21-24 First-Second Year
Sanskrit
14 s.h.
39:152-154 Aasi; Half the World
6 s.h.
Additional courses relating to Asia
6 s.h.

**Major in East Asian Languages and Literature**

Courses in History and Literature provide an understanding of the cultural background for language study. Requirements:

39:55-58 Civilizations of Asia
8 s.h.
39:19-20 Asian Humanities
8 s.h.

Asian language study:

For students of Chinese:
39:8-11 First-Second Year Chinese
24 s.h.
39:105-106 Third Year Chinese
12 s.h.

For students of Japanese:
39:8-11 First-Second Year
Japanese
24 s.h.
39:105-106 Third Year Japanese
12 s.h.

For students of Sanskrit:
39:21-24 First-Second Year
Sanskrit
14 s.h.

Two semesters of:
39:188 Readings in Sanskrit Texts
3 s.h.

Students with previous knowledge of Chinese, Japanese, or Sanskrit will be tested before registration, and will be placed in the appropriate course at an advanced level.

**Honors Program**

Students with junior status who maintain a 3.25 G.P.A. or above are encouraged to enroll in the honors Program. With the permission of the department chair and a faculty sponsor selected from among Asian specialists in any department, the student will register for 39:191 or 39:192 Honors Tutorial and 39:195 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.

**Graduate Study**

**M.A. Program in Asian Civilization**

Graduate study in Asian Civilization is designed to prepare students for careers in high school teaching, government service, or commerce where a knowledge of an Asian language and a broad regional background would be helpful. It also provides excellent preparation for advanced study on the doctoral level.

To receive an M.A. the student must complete 30 semester hours of coursework.

All students are required to write an M.A. thesis in English using Chinese, Japanese, or Indian language sources. The thesis may count for 4 semester hours of the 30 required. All students must maintain a 3.0 G.P.A.

Students will be required to demonstrate language competence by passing a departmental examination at the conclusion of their program. Language competence for students of Chinese and Japanese will be at the level of the completion of fourth-year modern and first-year classical language; for students of premodern South Asia, at the level of the completion of third-year Sanskrit; for students of modern South Asia, at the level of the second-year Sanskrit.

In addition, students will be examined on the History of China, Japan, or South Asia, and in two appropriate areas from among the following options:

- Chinese Anthropology
- Chinese History
- Chinese Linguistics
- Chinese Literature
- Chinese Philosophy
- Chinese Art
- Chinese Religion
- Japanese Anthropology
- Japanese History
- Japanese Literature
- Japanese Politics
- Japanese Art
- Japanese Religion
- South Asian History
- South Asian Literature
- South Asian Art
- South Asian Social Sciences
- South Asian Religion

The Department can accommodate native speakers of Chinese or Japanese who wish to work toward professional competence in Asian civilization. A curriculum for such a student would exclude any modern language work, and would include 28 semester hours of core coursework in Asia, and the four semester hours for the M.A. thesis. All candidates are expected to fulfill the general requirements of the Graduate College.

**Graduate Admission**

Applicants for admission must meet the general admission requirements of the Graduate College, except that a minimum grade-point average of 2.75 is required for conditional admission, 3.0 for regular admission. In addition, applicants must submit a specimen of their writing—such as a term paper, seminar paper, or graduation thesis—to the Department of East Asian Languages and Literature. All applications for graduate awards for the following academic year are due March 15. Applications for admission without support will be accepted until July 15 for the fall semester or December 15 for the spring semester. The candidate is advised to take the Graduate Record Examination at an early date since an admission decision cannot be made until scores are received.

**Library Facilities**

Since 1960 the University Library has been purchasing all books on Asia issued by major publishers in Western languages. The Library's reference collection in the Chinese and Japanese languages is more than adequate for basic research. It includes approximately 36,000 books, periodicals, and microfilms. It is particularly strong in literature, history, art, and philosophy, and it is constantly being augmented by purchases of books and periodicals necessary for research on contemporary society. The Library regularly acquires publications from India in Pali, Sanskrit, and English.

**Courses**

**Undergraduate Language Courses**

201 Chinese for Non-Majors I
4 s.h.
Intensive survey of immersion type instruction in writing characters: Chinese culture introduced through films, music, and internet games.

202 Chinese for Non-Majors II
4 s.h.
Further survey of spoken Chinese with some emphasis on the written language. Combination of 201, which is a prerequisite.

203 Chinese for Non-Majors III
3 s.h.
Continuation of 202, which is a prerequisite.
264.16 3rd Year Japanese 5 s.h.
Reading of more difficult modern Japanese, with further practice in speaking and writing. Continuation of 264.11, which is prerequisite. Fall.
264.115 3rd Year Japanese 5 s.h.
Continuation of 264.105, which is prerequisite. Spring.

Language Courses for Graduate Students

268.118 Classical Chinese 3 s.h.
Introduction to classical Chinese of the late Han period; readings will be primarily from the Ch'ing-lu t'ou-tao, Ma-Yu, and Ch'ing-wei and will stress grammar as well as text translation. Fall. Prerequisite: 268.111.
268.113 Classical Chinese 3 s.h.
Spring. Continuation of 268.106, which is prerequisite. Fall.
268.126 Classical Japanese 3 s.h.
Grammar and readings in classical Japanese. Fall. Prerequisite: 268.113.
268.116 Classical Japanese 3 s.h.
268.129 Readings in Modern Chinese 3 s.h.
Readings for advanced students of Mandarin, Pekingese. Prerequisite: 268.116. Same as 268.129.

268.131 Fourth Year Japanese 3 s.h.
The course aims at further development of language proficiency through reading of modern texts. Fall. Prerequisite: 268.126 or equivalent as demonstrated by oral and written examinations.
268.212 Fourth Year Japanese 3 s.h.
Spring. Continuation of 268.211, which is prerequisite.
268.211 Fourth Year Japanese 3 s.h.
Reading of advanced literary and vocabulary texts. Fall. Prerequisite: 268.206 or equivalent as demonstrated by oral and written examinations.
268.212 Fourth Year Japanese 3 s.h.
Spring. Continuation of 268.211, which is prerequisite.
268.317 Advanced Classical Chinese 3 s.h.
Readings from literary and historical texts of several periods. Continuation of 268.106 and 268.116, which are prerequisites.

Literature Courses in English Translation

268.116 Advanced Classics 4 s.h.
Characteristic literary texts of China or Indo-European literature. Required of all undergraduate anthropology majors. Fall. Same as 1116.4. 118.16
268.119 Asian Humanities 4 s.h.
Characteristic literary texts of Japan. Required of all undergraduate anthropology majors. Spring. Same as 116.4. 118.16
268.115 See also Literature 3 s.h.
From Snake to Serpent: a people's history of China (in English translation) and the influence of American writers. 2nd year. Same as 168.156.
268.118 Indian Literature 3 s.h.
Literature of ancient India in translation: epics, tales and popular tales. Fall.
268.119 Indian Literature 3 s.h.
Lesions of ancient India in translation: non-epic poetry and drama. Spring.
264.141 Survey of Chinese Literature I 3 s.h.
Developmental phases of Chinese literature: 1st millennium B.C. to 1st millennium A.D., with emphasis on poetry. Fall.
268.142 Survey of Chinese Literature II 3 s.h.
Developmental phases of Chinese literature from 1st millennium A.D. to present, with emphasis on fiction and drama. Spring.
268.143 Contemporary Chinese Literature 3 s.h.
Significant writers of the late 20th century. Significant works of this period. Fall.
266.124 Chinese Drama 3 s.h.
The development of modern Chinese drama as it is seen from a historical perspective. Same as 266.124.
268.133 The Library Tols 3 s.h.
Broad readings in storyteller literature: a study of thematic, structural, and aesthetic characteristics of the tale. Same as 265.131, 156.132.
268.133 East-West Library Tols 3 s.h.
Readings of Asian and Western literary works: exploration of the similarities of current oral arts to both. Fall.
268.211 Serbian in Chinese Literature 3 s.h.
Same as 268.121.
268.212 Early Japanese Literature 3 s.h.
Significant characteristics of Japanese poetry, prose, drama, fiction and drama in the Nara and Heian periods. Fall.
268.213 Medieval Japanese Literature 3 s.h.
Significant developments in poetry, fiction and drama in the Kamakura and Muromachi periods. Spring.
268.214 Early Modern Japanese Literature 3 s.h.
Poetry, fiction and drama of the Toyohira period, and early 19th century (17th-19th centuries). Fall.
268.215 Modern Japanese Literature 3 s.h.
Poetry and fiction of the 20th century. Fall.

Civilization Courses—Introduction in English

265.120 Civilization: China 3 s.h.
An introduction to the civilization of China, including the cultural, social, and historical aspects of the civilization. Taught in English. Fall.
265.121 Civilization: Japan 3 s.h.
An introduction to the civilization and society of the three major civilizations of Asia, India, Japan and China. Fall.
265.122 Civilization of Asia 3 s.h.
An introduction to the cultural and social history of each of the five major civilizations of Asia, India, Japan and China. Fall.
265.123 Civilization of Asia 3 s.h.
An introduction to the historical and present condition of Japan, India, and China. Spring. Same as 116.156.
Individual Study for Advanced Students

251/1 Rosen Tzviad
Pray.

251/22 Ideas Tutorial
Sup.

251/60 Senior Rosen Thesis
Sup.

251/28 Methods of Teaching Chinese
3 s.h.
Introduction to basic principles of elementary language instruction. Prerequisites: 251/16 or the equivalent, and written permission of department chair.

251/62 Methods of Teaching Japanese
3 s.h.
An introduction to the basic principles of elementary language instruction. Prerequisite: 251/16 or the equivalent, and written permission of department chair.

251/64 Individual Chinese for Advanced Students
Prereq.: 251/16.

251/71 Individual Japanese for Advanced Students
Prereq.: 251/16.

251/84 Individual Seminar for Advanced Students
Prereq.: 251/16 or 251/12.

252/21 N.A. Thesis
Pray.

252/22 N.A. Thesis
Sup.

Economics

Department chair: Calvin G. Southeast

Faculty members: Jared Barron, Anthony Casella, William Demirguk-Kunt, David Hendry, Todd Hogarth, Calvin Southeast, D. Y. Wu, R. Richard D. Averett, Paul Chui, George Padgett, and William von Hippel, Michael Sutin, Ergun, Joseph, Larry Berk, Samuel Williamson, and Susan Alexandre, J. Fred O'Meara, Anthony Padgett, Kenneth Shapiro

Degree offered: B.A., B.S.A., M.A., M.D.

Economics is concerned with the organization of production and consumption in society, and the associated welfare of the people. It involves the systematic study of topics such as wealth and poverty, money and banks, income and consumption, government expenditures and taxation, prosperity and depression, inflation and unemployment, big business and labor unions. and hundreds of other matters which intimately affect the way people live.

Economics seeks to develop an understanding of how complex economic systems work, along with providing training in the methods of economic analysis which can be applied to a wide range of economic problems. Study of economics is desirable simply from the standpoint of being an informed citizen capable of exercising rational choice at the voting booth. Accordingly, the Department offers a wide range of coursework to meet the needs of the nonmajor as well as the major.

Undergraduate Programs

The baccalaureate programs in economics provide an excellent background for a variety of positions in business and government. Graduates find employment in banking, financial institutions, industrial firms and trade organizations, and in federal, state and local government agencies dealing with economic policy, regulations and analysis. Economics is also considered excellent preparation for law school and for graduate study in such fields 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—the Bachelor of Science and Bachelor of Arts in the College of Liberal Arts and the Bachelor of Business Administration in the College of Business Administration. The B.A. and B.B.A. have the same major requirements, but their course requirements differ. The B.A. program is designed to allow the student maximum flexibility in attaining a well-rounded liberal arts education, while 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 has more qualitative content than the B.A. program, and is designed to prepare the student for graduate work in economics or related business and technical fields. The B.S. requires one year of foreign language, but the B.A. two years.

Program for the B.A. Degree

In addition to the general College of Liberal Arts requirements in skills and core courses, including at least two years of a foreign language, these are the requirements for the B.A. major in economics:

Courses outside the Department

225:25 Elementary Probability

3 s.h.

225:74 Quantitative Methods I

4 s.h.

225:84 Quantitative Methods II

4 s.h.

Courses in Economics

20 seminar hours of credit in 100-level courses, including 6E:103 Microeconomics and 6E:105 Macroeconomics. (Most 100-level courses in economics have as prerequisites either 6E:1 Principles of Economics or 6E:2 Principles of Economics, or senior standing; 6E:1 and 6E:2 satisfy the social science core requirement.) Credit gained in 6E:100 Price, Employment and Production Theory cannot be counted toward the 20 semester-hour economics courses required for the B.A. degree.

Program for the B.S. Degree

In addition to the general College of Liberal Arts requirements in skills and core courses, including one year of a foreign language, the B.S. in economics requires these core courses and electives:

22M:25-26 Calculus I-II

22S:120 Probability and Statistics
or
6E:183 Statistical Methods in Economics

20 semester hours of 100-level economics courses, including 6E:103, 6E:105 and 6E:94 Methods of Quantitative Economics

Credit toward the 6E:100 Price, Employment and Production Theory cannot be counted toward the 20-semester-hour requirement.

Honors in Economics

Undergraduate students working toward the B.A. or B.S. degree with a major in economics are eligible to participate in the Honors Program in Economics. The Honors Program offers the high-achieving student an opportunity to pursue special research interests. Honors students must complete four 100-level economics courses including 6E:103 and 6E:105 before their senior year, register for 6E:197 Senior Thesis in Economics for three hours of credit both semesters of their senior year; complete a senior thesis under direction of an economics faculty member of professional rank and take (during the final semester of the program) an examination covering their departmental Honors work. A student satisfactorily completing the Honors Program elevates his or her degree "with Honors."
Program for the B.B.A. Degree

The program for the B.B.A. degree is described in the College of Business Administration section of the Catalog.

Coursework for Nonmajors

6E:1-2 Principles of Economics satisfies the College of Liberal Arts social science core requirement, and provides an introduction to specialized topics of upper division courses. 6E:7 Contemporary Economic Problems and Policy gives students with limited exposure to economics an opportunity to examine the economics behind current policy issues. Coursework in economics will be related to majors in many other fields—for example, in environmental studies, 6E:133 Economic Growth and Environmental Decay and 6E:103 Microeconomics, or in political science, 6E:115 Economics of the Government Sector and 6E:141 Industrial Organization. A number of students combine related interests by pursing double majors in economics and, for example, computer science, geography, history, mathematics, political science, sociology or statistics.

Graduate Programs

The Department offers graduate instruction in the Master of the College and the Doctor of Philosophy degrees. Each degree 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 training without the requirement of specialization. The degree is usually completed within 18 months.

Areas of concentration offered by the Department include: economic development, economic history, health economics, history of economic thought, industrial organization, international economics, labor economics, economic theory and 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 the areas of microeconomic theory, macroeconomic theory, mathematical economics, and econometrics. In addition, the student selects a major area for intensive study and specialization. The usual time required to complete the Ph.D. program is four years.

Each year the department offers a stimulating seminar program involving eminent economists from major universities and government, as well as presentations by faculty and student members of the department.

Courses

All courses offered in the Department are listed in the College of Business Administration section of the Catalog.

Education

See "College of Education" section.

English

Department Chair: Richard Lloyd-Jones

Family: professor of English, Barry-Butler, Faris


Undergraduate Programs

The English Major

The broad purpose of the major in English is to provide a program of humanistic learning focused on the study of language and literature and the discipline of writing.

The immediate aims of the study of literature are to help students read the literature in a variety of ways and to aid them in relating the work to other aspects of its culture.

The chief aim of the study of language is to help students examine historically and analytically the possible and limitations of language.

The chief aim of the training in writing is to help students explore and define human experience, especially their own. Training may involve either artistic or functional writing—or both. In either case the immediate goal is written expression that is both precise and forceful.

The English major is valuable training for every type of position calling for clarity and clear expression. Students who have majored in English at Iowa are now teaching in colleges as well as primary and secondary schools. They are practicing law and medicine, working for rewriting firms, newspapers and book publishers, and for state and federal governments. Many others hold responsible positions in business and industry.

The only absolute requirement for the major in English is 30 hours of work in courses offered by the Department of English, including at least nine semester hours of work in courses dealing principally with literature written before 1800. In practice an English major ordinarily takes about 35 semester hours in English. At least 15 hours of coursework in English must be taken in residence.

With their advisors, English majors work out programs which seem best to meet their special needs and interests. Normally they begin with courses emphasizing voice and diction. Then they study particular literary genres, and the literature and culture of selected historical periods. Often they take courses in such diverse subjects as folklore, literature and music, and printing and design. Concurrently they typically select work in the history and theory of the English language, literature, and advanced training in writing. The latter may be imaginatively writing (poetry, fiction, play), functional writing (exposition, argument, technical reports, writing for social action) or any of the above.

To assist their study in the Department, English majors are encouraged to take as much work as possible in such fields as history, classical and modern foreign literatures, speech and the fine arts. Students planning to teach in primary or secondary schools will, of course, have to add appropriate courses in education. As soon as students decide to undertake a major in English, they should consult with the
The Literature Semesters
Available as low as two undergraduates, the two-semester semesters presently offered are English Literature Before 1900, and American and Contemporary Literature. The latter covers American literature from its beginnings through the present day, as well as British literature since 1900. Each literature semester carries 12 hours of credit and involves as much reading as would be contained in four ordinary courses. Classes meet two hours a day, five days a week. Three professors stand all sessions, and the instruction is divided equally among them. Since all work is discussed and compared within and across the conventional historical divisions, the students undergo an intensive discipline in practical criticism. They write a paper a week, practice oral reading and productions of scenes from plays, and often write parodies, imitations, and other exercises as means of increasing their sensitivity to literary styles.

The English Major with Honors
This major has the same general purposes as the regular major. In addition, it provides an opportunity for especially talented students to work independently and to graduate with special distinction. The program for Honors majors permits considerable substitution of advanced work for the more elementary courses, requires theses in most cases, and requires the writing of an undergraduate thesis. Each student works out his or her program with an Honors advisor.

Creative Writing
Many undergraduates come to Iowa because of the excellence of its creative writing program. We like the content of his or her advisor, any student may elect the undergraduate program in this program. However, admission to the undergraduate workshop in fiction and poetry (BA 68-86 “on request”) is open to all. The program, funded by the National Endowment for the Arts, is available to students majoring in English, and to students who meet the minimum requirements for the degree. Students interested in the program should consult the English Department for further information. For more information about the English major, please contact the English Department at 111 Old Main.

The Department offers a flexible undergraduate program for students planning to teach English in elementary and secondary schools. In addition to the necessary courses in education, there are no requirements except those mentioned above for the general major in English. However, students planning work which will help them in their first teaching experiences should remember that they will have to be able to work with details of expression in English. They will probably need advanced reporting in English—nonfiction, poetry, and fiction are all important—whether in reporting or in the other disciplines. Their literary study should emphasize a range of close reading experiences in different kinds of literature, as well as the methods for exploring a literary text. Especially, they should remember the importance of a broad educational experience for their own study and as a basis for understanding the interests of their students.

Finally, they should remember that an undergraduate degree represents minimal training for good teachers, so they should plan a program which will permit graduate study at a later time.

English majors who are working for teacher certification must devote one semester of the senior year to professional training off the campus in the English Department. The Department also participates in a joint major in English and elementary education. Those interested in such a program should consult the advisors in elementary education.

Students who seek certification for secondary teaching in English or to minor in English. Many students major in English, and many English majors are also majoring in other fields. Many of these English majors have gone on to graduate school in English, and many are now teaching in high schools and colleges.

Creative Writing
Many undergraduates come to Iowa because of the excellence of its creative writing program. We like the content of this program. However, admission to the undergraduate workshop in fiction and poetry (BA 68-86 “on request”) is open to all. The program, funded by the National Endowment for the Arts, is available to students majoring in English, and to students who meet the minimum requirements for the degree. Students interested in the program should consult the English Department for further information. For more information about the English major, please contact the English Department at 111 Old Main.

Sloan Summer Scholarships
Two $1,500 Sloan Scholarships are available to University of Iowa English majors for study at a university in the British Isles during the summer following the recipient's junior year. Applications must be submitted to the professor in charge of the summer program committee not later than February 25 for the following summer. The application must include a list of the English courses the applicant has completed, a statement of the applicant's plans for the summer, and a letter or final be completed by the University of Iowa English program, including the instructor's comments.

Graduate Programs
Master of Arts
The aims of the Master of Arts program are much the same as those of the undergraduate programs, except, of course, that the M.A. program is more demanding. It prepares students to teach English in high schools and colleges, to continue advanced studies for the Ph.D., or to pursue other careers. The M.A. students undertake the M.A. program for general personal development.

The program requires at least 30 semester hours of graduate credit, at least 24 of which must be earned in residence; one departmental seminar and at least one seminar or course in each of these areas: advanced composition, Shakespeare, American literature and British literature, or the 19th or 20th centuries. In addition to the 20 semester hours of English, the student is required to take at least 5 hours of Methods in Teaching High School English in the College of Education. While this program meets minimum requirements by certification, the Department believes that anyone desiring to teach English should have considerably more training in the field.

Master of Arts with Emphasis in Expository Writing
This program emphasizes the theory, analysis, practice, and teaching of expository writing.
writing. It is designed to meet the needs of students who wish to become teachers or critics of expository writing. Students who wish to become professional writers, or students who have specific career objectives but wish to improve their writing and to pursue a course of study that will help them to understand the nature and practice of expository writing.

To qualify for the M.A. in expository writing, a student must complete 36 semester hours of graduate work with a grade-point average no lower than 3.00. At least 24 of these hours must be in residence, including 8 hours of work in advanced composition at Iowa with a grade of "B" or "A".

In conjunction with an advisor, the student must plan a coherent program of study to be completed within the degree's time frame. This plan must be approved by an advisory committee which will ensure that the assumptions of the program in expository writing are manifest in each student's program.

Finally, the student must submit a thesis or a final committee's proposal for a thesis, which will be an extended piece of expository writing. The thesis must pass an oral examination in defense of the proposal, and must receive the favorable recommendation of the committee.

Work on the thesis may not be counted toward any other degree or any other course work. Students interested in this program should consult the Director of Advanced Writing.

Master of Arts and Specialist in Education

This is a two-year, 60-hour program for students who wish to prepare for teaching in community colleges. The program includes three hours in linguistics, 12 hours in literature, an intensive 21-hour seminar in advanced writing, and 24 in professional courses taught by specialists in English and education. Each student spends one semester teaching in a community college.

Master of Fine Arts

The purpose of the Master of Fine Arts program is to provide professional guidance and a stimulating environment for students with previous achievement or notable promise in translations, poetry, fiction or plays. The requirements are flexible, but usually include 48 semester hours of graduate work, a thesis in the Writers Workshop—a book-length collection of poems or short stories, a novel, a play, or a work of creative writing in some other appropriate form—and satisfactory performance on an examination on modern literature in the form the student is employing.

Master of Fine Arts with Emphasis in Translation

This alternative to the M.F.A. in Creative Writing emphasizes the discipline of translation, viewed as a distinct literary genre. Students are individually structured, and are developed to develop skills in source and target languages and cultures. The course also seeks to develop awareness of the tradition of translation and the history of translation theory. The program requires 48 semester hours of graduate credit, including a minimum of 12 hours of Translation Workshop, a collection of translated poetry, fiction, or drama, and an examination in practical problems involving problems of translation.

Doctor of Philosophy

Since most doctoral graduates enter college and university teaching, the Department attempts to prepare Ph.D. candidates for the teaching, editorial, and professional service required of faculty members. The doctorate requires 72 semester hours of graduate credit, of which at least 30 must be earned at The University of Iowa. Within specified limits, the program may be accommodated to the student's special needs and interests. For example, concentrations are possible in areas of literary history, literary criticism, writing, theoretical and critical studies, folklore, bibliography, pedagogy, comparative literature, and linguistics.

The Department also offers the Ph.D. with a concentration in modern letters, which provides the student an opportunity to focus part of his work on an interdisciplinary area. The term "interdisciplinary" may be interpreted broadly to mean a study of another foreign literature, film, drama, or study of contemporary culture. The requirements specified by the English Department include formal admission to candidacy by a vote of the full faculty; demonstration of a high level of competence in foreign languages and their literatures; in mastery of a single foreign language and its literature; distribution of coursework, depending upon needs, in historical areas, criticism, and linguistics; two seminars; a part-written, part-compiled comprehensive examination in three areas, two of which are usually historical genres of English and American literature; a dissertation, which may be either expository work or a piece of imaginative writing; and a final examination in defense of the dissertation. All doctoral candidates are required to gain teaching experience, preferably in the Rhinoceros and Literature Core programs of the College of Liberal Arts.

Interested students should write to the Director of Fellowships and Doctoral Admissions in English for more detailed exploration.

Financial Aid

Auxiliary is available to graduate students in the form of scholarships, fellowships and teaching and research assistantships. It is awarded on a competitive basis to the best qualified applicants, without regard to need. The award may be renewed for a second year. Since sources are limited, normally fewer than half the applicants for aid receive it. New students are unlikely to find aid to be an advantage, and should expect to support themselves throughout the first year. Applications for aid are available from students who have been admitted to the Graduate College, and all necessary supporting material must be submitted before August 15 for the following fall semester. Forms are available from the Department and the University Office of Admissions.

Admission

All applicants for admission to any graduate program in English must meet the general requirements for admission to the Graduate College, and must submit at least two letters of recommendation from individuals who are familiar with the applicant. M.F.A. students should submit 2-3 samples of their poetry or fiction to the Director of the Writing Program, and Ph.D. applicants should submit a representative sample of their writing—a course paper, seminar paper or thesis chapter—to the Department's associate director of graduate study.
Writing Programs

For the past thirty years, Iowa has exercised strong national leadership in virtually all areas of the teaching of writing. It was the first institution, in 1973, to accept creative experiments for advanced degree pro-
gress.

Founded in 1839, the Writers Workshop was a pioneer venture in the field of creative writing and numbers scores of distinguished poets and novelists among its alumni. The Workshop provides opportunities for students at all levels to work with outstanding teacher-auditors, and also brings numerous prominent authors to campus each year for lecture and readings.

The International Writing Program, founded in 1969, brings numbers of prominent foreign writers to campus each year, and has added a unique dimension to the opportunities available to students in the area.

Iowa has also been a leader in the area of expository writing and technical writing, and is one of the few academic institutions in the nation which offers a full range of graduate coursework in this area.

Beginning in the spring of 1979, the University of Iowa will be conducting an Institute on Writing, a project for the professional development of college and university directors of freshman writing programs. The institute is a five-year project, jointly funded by the National Endowment for the Humanities and the University. The presence of the Institute will serve to extend the resources available to students in the area of writing, and will enable the department to bring distinguished instructors to campus to participate in regular course offerings in writing.

Special Facilities

The University Library is strong in all areas of English and American literature, and is especially noteworthy for its collection of American periodicals and books in 19th and 20th century works.

The Department provides a wealth of opportunities for student involvement in critical, scholarly, and creative publications. The Iowa Journal of Literary Studies is a quarterly publication edited by graduate students, in which the emphasis is on featuring the creative and scholarly work of students in English and related areas.

Opportunities are also available for editorial experience through the Iowa Review, Psychological Quarterly, and the Winthrop Press.

Students are welcome to participate in the activities of the English Graduate Student Society, the Humanities Society, the Friends of Old-Time Music, and the Midwest Modern Language Association. Visiting writers and lecturers are on the campus almost every week, and periodic conferences and literary "tutorials" enrich the routine of classroom work.

Courses

Individual descriptions for the English courses listed below are not included because the content and emphasis of many courses varies considerably from semester to semester.

Detailed course descriptions for all offerings in a given semester are published in the English Department office and given in the beginning of each semester.

For Undergraduates

Lecture courses are open to all undergraduates who have satisfied the prerequisite requirement.

<table>
<thead>
<tr>
<th>Course</th>
<th>3 s.h.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1 Modern Prose</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>0.2 Modern Poetry</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>0.3 Modern Drama</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>0.5 Classical And Biblical Literature</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>0.8 Shakespearean</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>a10 Introduction to Film Analysis</td>
<td>3.0 s.h.</td>
</tr>
</tbody>
</table>

Introductory Courses in Close Reading of Texts

Limited-enrollment discussion courses in which a small number of students are used specially to illustrate strategies for precision in reading and evaluating literature.

<table>
<thead>
<tr>
<th>Course</th>
<th>3 s.h.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5 Critical Approaches to Literary Works</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>0.51 Major British and American Prose I</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>0.52 Major British and American Prose II</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>0.55 Selected Plays</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>0.56 Selected Titles</td>
<td>3.0 s.h.</td>
</tr>
</tbody>
</table>

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>3 s.h.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.55 Selected Prose</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>0.56 Selected Essays</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>0.58 Selected Works of the Middle Ages</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>0.61 Selected Works of the Renaissance</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>0.62 Selected Works of the 18th Century</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>0.63 Selected Works of the 19th Century</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>0.64 Selected American Works Before 1950</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>0.65 Selected Early American Works</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>0.66 Selected Works of the 20th Century</td>
<td>3.0 s.h.</td>
</tr>
</tbody>
</table>

Major Authors Courses

Limited-admission discussion courses, each author in representation for several major works. Consultation of a given author is encouraged. Completion of the major allows a student to complete requirements for major in the upper division level.

<table>
<thead>
<tr>
<th>Course</th>
<th>3 s.h.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.71 Shakespeare</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>0.72 Shakespeare</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>0.73 Selected English Authors</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>0.74 Selected American Authors</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>0.75 Selected English and American Authors</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>0.76 Selected Modern English</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>0.77 Selected Authors</td>
<td>3.0 s.h.</td>
</tr>
</tbody>
</table>

Literature Semester Courses

Limited-enrollment, team-teaching discussion courses emphasizing the reading of major texts from appropriate periods or themes. Literature Semester I (0.5-0.5) satisfies part of the major for freshmen before 1961. Students should have taken at least one introductory course before starting the semester course. Prerequisites are required.

<table>
<thead>
<tr>
<th>Course</th>
<th>3 s.h.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.61 English Literature Before 1500</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>0.62 English Literature Before 1500</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>0.63 English Literature Before 1500</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>0.64 American And Contemporary Literature</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>0.65 American And Contemporary Literature</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>0.66 American And Contemporary Literature</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>0.67 American And Contemporary Literature</td>
<td>3.0 s.h.</td>
</tr>
</tbody>
</table>

Seminars for Undergraduate Majors

Regularly listed for English majors and may also be available to others by special permission of the instructor.

<table>
<thead>
<tr>
<th>Course</th>
<th>3 s.h.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.88 Junior Seminar</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>0.89 Undergraduate Seminar</td>
<td>3.0 s.h.</td>
</tr>
</tbody>
</table>

For Undergraduate and Graduate Students

Literature and Culture Courses

Primarily for undergraduate and graduate students. These advanced courses are designed to develop major works and subjects within the context of the social, political, intellectual and aesthetic movements of the time. Open to the Iowa School of Social and Industrial Relations, students majoring in the School of Drama, the School of English, and other majors interested in the cultural aspects of contemporary American culture. Students who have established majors in English are encouraged to use these courses as part of their majors.

<table>
<thead>
<tr>
<th>Course</th>
<th>3 s.h.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1055 Selected Topics in Critical Problems</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>1061 Literature and Culture of the Middle Ages</td>
<td>3.0 s.h.</td>
</tr>
</tbody>
</table>
LIBERAL ARTS/English

0:120 Literature and the Culture of the Renaissance 2-3 s.h.
0:121 Literature and the Culture of 18th-Century England 2-3 s.h.
0:124 Literature and the Culture of 19th-Century England 2-3 s.h.
0:126 Literature and Culture of 18th-Century America 2-3 s.h.
0:128 Literature and the Culture of 20th-Century America 2-3 s.h.
0:127 American Criticism and Culture 1900 to Present 2-3 s.h.
0:130 American Literature and Civilization 3 s.h.
0:132 European Literature of the 19th Century 2 s.h.
0:133 Selected Authors 3 s.h.
0:131 American Folk Literature 7 s.h.
0:132 Alfred, Amy, and Emily 5 s.h.
0:133 American Indian Literature 3 s.h.
0:134 American Regional Literature 3 s.h.
0:135 Literature of France 2-3 s.h.
0:136 American Literature I 3 s.h.
0:137 American Literature II 3 s.h.
0:140 Chinese Literature 3 s.h.
0:141 Chinese Literature 3 s.h.
0:142 African Literature 3 s.h.
0:143 African Literature 3 s.h.
0:144 Caribbean Literature 3 s.h.
0:145 Caribbean Literature 3 s.h.
0:146 Caribbean Literature 3 s.h.
0:147 Caribbean Literature 3 s.h.
0:148 Caribbean Literature 3 s.h.
0:149 Caribbean Literature 3 s.h.
0:146 Caribbean Literature 3 s.h.
0:147 Caribbean Literature 3 s.h.
0:148 Caribbean Literature 3 s.h.
0:149 Caribbean Literature 3 s.h.

Literary Genre Courses

Poetry
0:138 Chinese Poetry 2 s.h.
0:131 British Poetry 2 s.h.
0:132 American Poetry 2 s.h.
0:135 Modern British and American Poetry 2 s.h.

Thematic Studies
0:150 British Themes in Literary Works 2-3 s.h.
0:151 Women in Literature 2-3 s.h.
0:152 Literature of Peace and War 3 s.h.
0:153 Uses of Violence Literature 2-3 s.h.
0:154 Concepts of Love in Western Literature 2-3 s.h.
0:155 Changing Concepts of Weapon in Literature 2-3 s.h.

Interdisciplinary Courses
0:144 Language, Literature, and Medicine 3 s.h.
0:151 Literature and Anthropology 3 s.h.
0:152 Poetry and Related Art Forms 3 s.h.
0:153 Drama and Related Art Forms 3 s.h.
0:154 Narrative and Related Art Forms 3 s.h.
0:155 Literature and the Film Genre 2-3 s.h.
0:156 Film Script Analysis 3 s.h.
0:157 Literature and Psychology 3 s.h.
0:158 Literature and Philosophical Thought 2-3 s.h.
0:177 Literature and Art 2 s.h.
0:178 Literature and Science 2-3 s.h.
0:179 Literature and Society 3 s.h.
0:180 Literature and Race 2-3 s.h.
0:181 Non-Prose and Non-Fiction Film 4-6 s.h.

Design and Printing Courses
0:187 Hand-Printed Books Problems in Design 3 s.h.
0:180 Medieval Manuscripts and Bookbinding 3 s.h.
0:202 History of the Book 3 s.h.

0:185 Undergraduate Research Project 3 s.h.
0:186 Special Project for Undergraduates 3 s.h.

For Graduates

Introduction to Graduate Study 3 s.h.
0:208 Bibliography and Research Methods 3 s.h.
0:201 Critical and Socially Responsible Literature 3 s.h.
0:207 Literary Interpretations 3 s.h.

Medieval Languages and Literatures
0:211 Old English 2 s.h.

0:120 Literature and the Culture of the Renaissance 2-3 s.h.
0:121 Literature and the Culture of 18th-Century England 2-3 s.h.
0:124 Literature and the Culture of 19th-Century England 2-3 s.h.
0:126 Literature and Culture of 18th-Century America 2-3 s.h.
0:128 Literature and the Culture of 20th-Century America 2-3 s.h.
0:127 American Criticism and Culture 1900 to Present 2-3 s.h.
0:130 American Literature and Civilization 3 s.h.
0:132 European Literature of the 19th Century 2 s.h.
0:133 Selected Authors 3 s.h.
0:131 American Folk Literature 7 s.h.
0:132 Alfred, Amy, and Emily 5 s.h.
0:133 American Indian Literature 3 s.h.
0:134 American Regional Literature 3 s.h.
0:135 Literature of France 2-3 s.h.
0:136 American Literature I 3 s.h.
0:137 American Literature II 3 s.h.
0:140 Chinese Literature 3 s.h.
0:141 Chinese Literature 3 s.h.
0:142 African Literature 3 s.h.
0:143 African Literature 3 s.h.
0:144 Caribbean Literature 3 s.h.
0:145 Caribbean Literature 3 s.h.
0:146 Caribbean Literature 3 s.h.
0:147 Caribbean Literature 3 s.h.
0:148 Caribbean Literature 3 s.h.
0:149 Caribbean Literature 3 s.h.

Literary Genre Courses

Poetry
0:138 Chinese Poetry 2 s.h.
0:131 British Poetry 2 s.h.
0:132 American Poetry 2 s.h.
0:135 Modern British and American Poetry 2 s.h.

Thematic Studies
0:150 British Themes in Literary Works 2-3 s.h.
0:151 Women in Literature 2-3 s.h.
0:152 Literature of Peace and War 3 s.h.
0:153 Uses of Violence Literature 2-3 s.h.
0:154 Concepts of Love in Western Literature 2-3 s.h.
0:155 Changing Concepts of Weapon in Literature 2-3 s.h.

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0:144 Language, Literature, and Medicine 3 s.h.
0:151 Literature and Anthropology 3 s.h.
0:152 Poetry and Related Art Forms 3 s.h.
0:153 Drama and Related Art Forms 3 s.h.
0:154 Narrative and Related Art Forms 3 s.h.
0:155 Literature and the Film Genre 2-3 s.h.
0:156 Film Script Analysis 3 s.h.
0:157 Literature and Psychology 3 s.h.
0:158 Literature and Philosophical Thought 2-3 s.h.
0:177 Literature and Art 2 s.h.
0:178 Literature and Science 2-3 s.h.
0:179 Literature and Society 3 s.h.
0:180 Literature and Race 2-3 s.h.
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0:187 Hand-Printed Books Problems in Design 3 s.h.
0:180 Medieval Manuscripts and Bookbinding 3 s.h.
0:202 History of the Book 3 s.h.

0:185 Undergraduate Research Project 3 s.h.
0:186 Special Project for Undergraduates 3 s.h.

For Graduates

Introduction to Graduate Study 3 s.h.
0:208 Bibliography and Research Methods 3 s.h.
0:201 Critical and Socially Responsible Literature 3 s.h.
0:207 Literary Interpretations 3 s.h.

Medieval Languages and Literatures
0:211 Old English 2 s.h.
<table>
<thead>
<tr>
<th>Authors Courses</th>
<th>3.x.a.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.251 Dickens</td>
<td></td>
</tr>
<tr>
<td>0.263 Shakespeare: Early Plays</td>
<td>0.367-0.368</td>
</tr>
<tr>
<td>0.252 Shakespeare: Later Plays</td>
<td>0.367-0.368</td>
</tr>
<tr>
<td>0.254 Milton</td>
<td>3.x.a.</td>
</tr>
<tr>
<td>0.258 Selected Authors</td>
<td>3.x.a.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Literary Criticism Courses</th>
<th>3.x.a.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.241 History of Criticism: Anglo</td>
<td>3.x.a.</td>
</tr>
<tr>
<td>0.295 History of Criticism: Latin</td>
<td>3.x.a.</td>
</tr>
<tr>
<td>0.283 Issues in Contemporary Literary Criticism</td>
<td>3.x.a.</td>
</tr>
<tr>
<td>0.264 Issues in the History of Literature</td>
<td>3.x.a.</td>
</tr>
<tr>
<td>0.285 Drama and Theatre Theory I</td>
<td>3.x.a.</td>
</tr>
<tr>
<td>0.286 History of Modern Literature</td>
<td>3.x.a.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Literary Period Courses</th>
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</tr>
</thead>
<tbody>
<tr>
<td>0.219 Early English Literature</td>
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<tr>
<td>0.220 English Literature</td>
<td>3.x.a.</td>
</tr>
<tr>
<td>0.221 17th-Century Literature</td>
<td></td>
</tr>
<tr>
<td>0.222 18th-Century Literature</td>
<td></td>
</tr>
<tr>
<td>0.223 Romantic Literature</td>
<td></td>
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<tr>
<td>0.224 Gothic Literature</td>
<td>3.x.a.</td>
</tr>
<tr>
<td>0.225 Victorian Literature</td>
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<tr>
<td>0.226 Late Victorian and Edwardian Literature</td>
<td>3.x.a.</td>
</tr>
<tr>
<td>0.258 British Literature: 1814-1945</td>
<td>3.x.a.</td>
</tr>
<tr>
<td>0.262 Literary History of the United States</td>
<td>3.x.a.</td>
</tr>
<tr>
<td>0.263 History of the United States II</td>
<td>3.x.a.</td>
</tr>
<tr>
<td>0.264 Early American Literature</td>
<td>3.x.a.</td>
</tr>
<tr>
<td>0.265 19th-Century American Literature</td>
<td>3.x.a.</td>
</tr>
<tr>
<td>0.266 20th-Century American Literature</td>
<td>3.x.a.</td>
</tr>
<tr>
<td>0.267 Modern Literary Narrative</td>
<td>3.x.a.</td>
</tr>
<tr>
<td>0.268 Modern Literature and Film</td>
<td>3.x.a.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Special Period Studies Courses</th>
<th>3.x.a.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.231 Medieval Studies</td>
<td></td>
</tr>
<tr>
<td>0.232 Renaissance Studies</td>
<td></td>
</tr>
<tr>
<td>0.233 17th-Century English Poetry</td>
<td></td>
</tr>
<tr>
<td>0.234 18th-Century English Poetry</td>
<td></td>
</tr>
<tr>
<td>0.235 19th-Century English Poetry</td>
<td>3.x.a.</td>
</tr>
<tr>
<td>0.236 20th-Century English Poetry</td>
<td>3.x.a.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Graduate Seminars</th>
<th>3.x.a.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.462 Seminar: Medieval Literature</td>
<td>3.x.a.</td>
</tr>
<tr>
<td>0.463 Seminar: 15th-Century Non-Dramatic Literature</td>
<td>3.x.a.</td>
</tr>
<tr>
<td>0.464 Seminar: 15th-Century Dramatic Literature</td>
<td>3.x.a.</td>
</tr>
<tr>
<td>0.465 Seminar: Renaissance</td>
<td>3.x.a.</td>
</tr>
<tr>
<td>0.466 Seminar: 19th-Century Non-Dramatic Literature</td>
<td>3.x.a.</td>
</tr>
<tr>
<td>0.467 Seminar: 19th-Century Dramatic Literature</td>
<td>3.x.a.</td>
</tr>
<tr>
<td>0.468 Seminar: 20th-Century Non-Dramatic Literature</td>
<td>3.x.a.</td>
</tr>
<tr>
<td>0.469 Seminar: 20th-Century Dramatic Literature</td>
<td>3.x.a.</td>
</tr>
<tr>
<td>0.470 Seminar: 21st-Century English Literature</td>
<td>3.x.a.</td>
</tr>
<tr>
<td>0.471 Seminar: American Colonial Literature</td>
<td>3.x.a.</td>
</tr>
<tr>
<td>0.472 Seminar: American Romantic Literature</td>
<td>3.x.a.</td>
</tr>
<tr>
<td>0.473 Seminar: American Realistic Literature</td>
<td>3.x.a.</td>
</tr>
<tr>
<td>0.474 Seminar: American Naturalistic Literature</td>
<td>3.x.a.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Comparative and European Literature</th>
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</tr>
</thead>
<tbody>
<tr>
<td>0.271 European Renaissance</td>
<td>3.x.a.</td>
</tr>
<tr>
<td>0.274 European Realism</td>
<td>3.x.a.</td>
</tr>
<tr>
<td>0.275 European Enlightenment</td>
<td>3.x.a.</td>
</tr>
<tr>
<td>0.276 European Realism</td>
<td>3.x.a.</td>
</tr>
<tr>
<td>0.277 Modern European Poetry</td>
<td>3.x.a.</td>
</tr>
</tbody>
</table>

| 0.286 Renaissance and Modern Literary Criticism | 3.x.a. |
| 0.287 Renaissance and Modern Literary Criticism | 3.x.a. |
| 0.288 Renaissance and Modern Literary Criticism | 3.x.a. |
| 0.289 Renaissance and Modern Literary Criticism | 3.x.a. |
Independent Study

Advanced Studies

Courses for over-advanced students reading without the guidance of a faculty member:

3509 Advanced Studies In an Author 3 s.h.
3509 Advanced Studies In an Author Period 3 s.h.
3519 Advanced Studies In a Library Form 3 s.h.
3529 Advanced Studies In a Library Week 3 s.h.
3539 Advanced Studies In a Library Movement 3 s.h.
3539 Advanced Studies In a Library Theme 3 s.h.
3549 Advanced Studies In a Library Criticism 3 s.h.
3549 Advanced Studies In Politics 3 s.h.
3549 Advanced Studies In an International Study Subject 3 s.h.
3569 Special Project for Great Students 3 s.h.

Citation

3504 Py.3. These 3 s.h.

Linguistics and Language Courses

3529 Seminars in Linguistics 3 s.h.
3529 Linguistics in Literature 3 s.h.
3529 Language Study Processory 3 s.h.
3529 History of the English Language 3 s.h.
3529 Historical and Comparative Linguistics 3 s.h.
3519 History of the English Language 3 s.h.
3519 Historical and Comparative Linguistics 3 s.h.
3519 Historical and Comparative Linguistics 3 s.h.
3519 Historical and Comparative Linguistics 3 s.h.
3519 Historical and Comparative Linguistics 3 s.h.
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French and Italian

French

The undergraduate major in French may be completed with an orientation in literature, civilization or teaching. Courses taught in English do not count toward the French major.

The literature program requires a total of 45 semester hours, including:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:276-286</td>
<td>Second-Year Composition and Conversation</td>
<td>8 h.</td>
</tr>
<tr>
<td>9:111-112</td>
<td>Third-Year Composition</td>
<td>6 h.</td>
</tr>
<tr>
<td>9:128</td>
<td>French Conversation: Third Level</td>
<td>2 h.</td>
</tr>
<tr>
<td>9:135</td>
<td>French Conversation: Fourth Level</td>
<td>2 h.</td>
</tr>
<tr>
<td>9:137</td>
<td>Advanced French Pronunciation</td>
<td>2 h.</td>
</tr>
<tr>
<td>9:230</td>
<td>French Pronunciation</td>
<td>2 h.</td>
</tr>
</tbody>
</table>

A minimum of four 100-level courses in literature, plus a fifth 100-level course in rhetoric, advanced language or civilization, totaling 15 semester hours.

The civilization program requires 34-35 semester hours, including:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:276-286</td>
<td>Second-Year Composition</td>
<td>8 h.</td>
</tr>
<tr>
<td>9:111-112</td>
<td>Third-Year Composition</td>
<td>3 h.</td>
</tr>
</tbody>
</table>

A choice of one from this group.

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:128</td>
<td>French Conversation: Third Level</td>
<td>2 h.</td>
</tr>
<tr>
<td>9:135</td>
<td>French Conversation: Fourth Level</td>
<td>2 h.</td>
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</tbody>
</table>

A minimum of four 100-level courses in French civilization and three 100-level courses in literature totaling 21 semester hours.

The teaching major requires 35 semester hours, including:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>9:276-286</td>
<td>Second-Year Composition and Conversation</td>
<td>8 h.</td>
</tr>
<tr>
<td>9:111-112</td>
<td>Third-Year Composition</td>
<td>9 h.</td>
</tr>
<tr>
<td>9:137</td>
<td>Advanced French Pronunciation</td>
<td>2 h.</td>
</tr>
<tr>
<td>9:135</td>
<td>French Conversation: Third Level</td>
<td>2 h.</td>
</tr>
</tbody>
</table>

Italian

Requirements for the major in Italian include:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>18:111</td>
<td>Intermediate Italian</td>
<td>6 h.</td>
</tr>
<tr>
<td>18:117</td>
<td>Advanced Composition and Conversation</td>
<td>8 h.</td>
</tr>
<tr>
<td>18:105-106</td>
<td>Introduction to Italian Literature</td>
<td>8 h.</td>
</tr>
<tr>
<td>18:126</td>
<td>Dante and His Times</td>
<td>6 h.</td>
</tr>
<tr>
<td>18:101</td>
<td>Literature of the 19th Century</td>
<td>3 h.</td>
</tr>
<tr>
<td>18:105</td>
<td>Literature of the 20th Century</td>
<td>3 h.</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>24 h.</td>
</tr>
</tbody>
</table>

Honors

The Department participates in the College of Liberal Arts Honors Program, which provides enrichment opportunities for qualified students.

Summer Program in France

The Department is cosponsor of a Summer Program in France for students enrolled in the three Iowa Regent 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. Courses are taught in Paris, the eight-week program combines formal class work in language skills with an integrated course in the culture and civilization of France, with visits to points of cultural and historical interest. Students may earn up to two semester hours of credit in the program.
Graduate Programs

Master of Arts

Three different programs are offered leading to the Master of Arts degree in French. For some students this may be a terminal degree, for others a step toward the doctorate. The plan of study should therefore correspond to the candidate's objectives. Students will consult with the departmental director of graduate studies and their advisory committees in determining plan of study.

Master of Arts without Thesis

This program requires a minimum of 30 semester hours and the passing of a written and oral examination. The program must include 9-175 Advanced French Pronunciation, 9-209 Advanced Grammar and Lexicology, 9-210 Comparative Stylistics, and at least four graduate-level (200 and above) literature courses. With the permission of the departmental executive officer, the candidate may take up to six of the required 30 hours outside the Department.

Master of Arts with Thesis

The requirements for the thesis program are the same as for the M.A. without thesis, except that in the thesis program the candidate may earn up to six semester hours credit for the thesis, which will be defended at the time of the comprehensive examination.

Master of Arts in French Education

This program is intended primarily for preservice secondary and junior college teachers. Requirements include a total of 38 semester hours at the advanced level, of which 8 must be taken in education or related fields and at least 9 must be in graduate courses in French literature. These courses are also suggested: 9-153 Stylistics: Analysis and Application, 9-154 Textual Analysis, 9-209 Advanced Grammar and Lexicology, 9-210 Comparative Stylistics, 9-113-114 French Civilization, 9-150 Methods, Foreign Language.


Doctor of Philosophy

The Ph.D. degree in French is awarded after completion of at least three years of graduate study (of which one must be spent in residence at the University), the passing of a comprehensive examination, and the oral defense of a dissertation.

Specific requirements for the Ph.D. in French include:

9-251 Introduction to Old French Grammar; Proficiency in a foreign language other than French (i.e., four semesters of college study or equivalent);
Completion of three graduate courses (minimum of eight semester hours in a related field, such as another literature, or history, philosophy, etc.; and a minimum of six semester hours of credit in 9-277 Thesis.

The choice of second language and field are to be determined by the candidate and advisor in consultation.

Graduate students working toward an advanced degree are required to spend at least one year teaching as graduate assistants in the Department.

Admission

For admission to the M.A. program in French, the applicant must have completed the equivalent of the undergraduate major in French. Deficiencies in previous training may be removed by taking appropriate courses.

It has been the practice of the Department to require that doctoral candidates first earn the M.A. degree in French. Successful completion of the M.A. program 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 with the M.A. earned at another institution are, when admitted, placed on conditional status and this status is reviewed after one semester of residence. In addition to the Graduate Record Examination scores required by the Graduate College, the Department requires of all candidates the GRE Advanced Test in French.

Appointments

Teaching and research assistantships and University fellowships and scholarships are available to qualified graduate students (see "Graduate College"). 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 and the University of Poitiers provide a limited number of graduate students one year of residence in France.

French Courses

Primarily for Undergraduates

Students who have had significant experience with French, though who may not be fluent, are encouraged to take an intensive course. A student may not, however, fail to show sufficient preparation to succeed in French courses for which the elementary course or its equivalent is prerequisite.

B1 Elementary French 4.5 hr.

B2 Elementary French

Prerequisite: B1 or equivalent.

B5 Elementary French Intensive Courses

4.5 hr. First-year French in one semester.

B7 French for Travelers I 2.5 hr.

Basic conversational French for the traveler. Given in Saturday and Evening Class Program.

B8 French for Travelers II 3.5 hr. Continuation of B7 with emphasis on practical vocabulary. Given in Saturday and Evening Class Program.

B9 French for Physicians 3 hr.

Preparation of physicians and medical personnel. Given in Saturday and Evening Class Program.

B10 French Literature and Civilization 4 hr.

Given in spring in English. My students are not given credit for this course at the University of Poitiers.

B11 French Literature and Civilization 3 hr.

Recommended for students who wish to take their study of French with a second-year proficiency level.

B12 Intermediate French 3.5 hr. Continuation of B11. Prerequisite: B11 or equivalent.

B20 French Pronunciation 3.5 hr.

May be taken in conjunction with B21, 220, 8111, 8112.
ITALIAN COURSES

Primary for Undergraduates

18:1 Elementary Italian

18:2 Elementary Italian

18:11 Intermediate Italian / Elementary

18:12 Intermediate Italian / Elementary

18:13 Conversational Italian

18:14 Conversational Italian

18:03 Special Work

18:111 Advanced Composition and

18:112 Advanced Composition and

For Undergraduates and Graduates

18:101 Literature of the 18th Century

18:102 Literature of the 18th Century

18:103 Intensive Italian, Summer

18:105 Introduction to Literature

18:106 Introduction to Italian Literature

18:107 Dante and His Times

18:108 Dante and His Times

General Science

Coordinator: Prof. C. J. Wagner
Degree offered: B.A., B.S.

The program in General Science enables preprofessional students who need credit in several science disciplines, as well as students interested in a variety of science disciplines, to complete a degree while satisfying preprofessional requirements and/or continuing with courses in multiple science fields. The program provides some depth of preparation while encouraging continual breadth of experience—a combination attractive for preparation for secondary school teaching or health-related professions involving medicine, dentistry, medical technology, pharmacy, and similar work, as well as for interdisci- linary graduate areas. There are three categories of programs leading to the bachelor’s degree in General Science, each having differing requirements, as follows:

Non-Teaching and Non-Health Related

A student must earn 41 semester hours (48 for the B.S. degree) of credit for courses from any three of the science-mathematics areas in the College of Liberal Arts (biochemistry, biology, chemistry, mathematical sciences, geology, microbiology, physics, astronomy, and zoology), with at least 20 semester hours in three of these areas.

At students who graduate with a degree in general science (non-teaching) and are not in a joint degree or professional program, listed below must complete one of the following: mathematics courses, or equivalent, or a higher level mathematics course at the college level. 

Health Related—Joint Programs

A student must earn 44 semester hours (49 for the B.S. degree) of credit for courses from any three of the science-mathematics areas in the College of Liberal Arts (biochemistry, biology, chemistry, mathematical sciences, geology, microbiology, physics, astronomy, and zoology), with at least 20 semester hours in one of these areas.

Students admitted into the College of Dentistry or College of Medicine prior to obtaining a bachelor’s degree, and students admitted into the professional programs in Medical Technology, Nuclear Medical Technology, or Physical Therapy may substitute from their first year of professional training 30 semester hours of credit toward the 124 needed for graduation, including:

Eight semester hours of science toward the 44 needed toward the general science minor; and

Four semester hours of science toward the 20 needed in one area in the major.

Students should consult with their department of science about sections of the catalog for further information concerning other features of these professional and preprofessional programs. The description here pertaining only to the Liberal Arts requirements for a bachelor’s degree in general science, and should not imply anything further concerning specific program requirements in a particular field.
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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tr>
<td>97:104</td>
<td>Introduction to Geology</td>
<td>3 s.h.</td>
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<tr>
<td>97:110</td>
<td>Principles of Historical Geology</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>97:111</td>
<td>College Physics</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>97:103</td>
<td>Societal and Educational Applications of Biology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>97:105</td>
<td>Societal and Educational Applications of Physics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>97:106</td>
<td>Societal and Educational Applications of Chemical Concepts</td>
<td>2 s.h.</td>
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<tr>
<td>97:108</td>
<td>Societal and Educational Applications of Chemical Concepts</td>
<td>8 s.h.</td>
</tr>
<tr>
<td>97:112</td>
<td>College Physics</td>
<td>8 s.h.</td>
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<tr>
<td>97:121</td>
<td>Organic Chemistry I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>97:131</td>
<td>Physical Chemistry I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>97:141</td>
<td>Intermediate Chemistry I</td>
<td>2 s.h.</td>
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<tr>
<td>97:149</td>
<td>Problems in Integrating the</td>
<td>1 s.h.</td>
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<tr>
<td></td>
<td>Teaching of Environmental Science</td>
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<tr>
<td>97:212</td>
<td>Meaning of Science</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>97:301</td>
<td>Science in Historical Perspective</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>413:14</td>
<td>Principles of Chemistry I</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>416:13</td>
<td>Chemistry Laboratory I</td>
<td>2 s.h.</td>
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</table>

Students successfully completing the program, including the education sequence, are recommended for certification to teach physical science, chemistry, and physics. A student who, in addition, earns six semester hours of credit in biology, is also recommended for certification to teach general science.

Course Sequence:

1. Principles of Historical Geology (3 s.h.)
2. College Physics (4 s.h.)
3. Societal and Educational Applications of Biology (3 s.h.)
4. Societal and Educational Applications of Physics (3 s.h.)
5. Societal and Educational Applications of Chemical Concepts (2 s.h.)
6. Principles of Organic Chemistry I (3 s.h.)
7. Intermediate Chemistry I (2 s.h.)
8. Problems in Integrating the Teaching of Environmental Science (1 s.h.)
9. Meaning of Science (2 s.h.)
10. Science in Historical Perspective (2 s.h.)
11. Principles of Chemistry I (6 s.h.)
12. Chemistry Laboratory I (2 s.h.)
At least 10 of the 56 semester hours in this sequence must be earned in 100-level courses.

Students completing the program, including the internship sequence, are recommended for certification to teach physical science, chemistry, and physics. Those who, in addition, earn six semester hours of credit in biology are also recommended for certification to teach general science. Those who, in addition, earn 12 semester hours of credit in astronomy and geology are also recommended for certification to teach earth science.

**Minor in Science Teaching**

Six science teaching minors are available for persons with teaching majors in other academic areas. All require 21 semester hours of credit, excepting the two general science minors, which require 35.

Students who wish to pursue a science teaching minor and to qualify for University of Iowa recommendation 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: Researches and Teaching Strategies 2 s.h.
- 75:191 Observation and Laboratory Practice in the Secondary School 3 s.h.
- 97:108 Meeting of Science 2 s.h.
- 97:130 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.
  - 97:109 Societal and Educational Applications of Biological Concepts 6 s.h.
  - Botany and zoology electives 9 s.h.

- **Chemistry**
  - 4:13-14 Principles of Chemistry II 6 s.h.
  - 4:16 Elementary Chemistry Laboratory 2 s.h.

**Concepts** 10 s.h.

**Physics** 8 s.h.

- 29:11-12 College Physics 8 s.h.
- 87:105 Societal and Educational Applications of Selected Concepts of Physics 10 s.h.
- Physics electives 10 s.h.

**General Science I**

- 2:1 Introduction to Botany 4 s.h.
- 29:61 General Astronomy 4 s.h.
- 12:3 Principles of Physical Geography or 2 s.h.
- 12:4 Principles of Historical Geography 2 s.h.
- 4:13 Principles of Chemistry I 3 s.h.
- 29:11 College Physics 4 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.
- 37:102 Ecology 2.4 s.h.
- 4:13 Principles of Chemistry I 3 s.h.
- Electives in environmental engineering 3 s.h.
- 97:140 Problems in Integrating the Teaching of Environmental Science 3 s.h.

**Earth Science**

- 12:3 Principles of Physical Geography 2 s.h.
- 12:4 Principles of Historical Geography 2 s.h.
- 29:61 General Astronomy 4 s.h.
- Geology and Astronomy electives 10 s.h.
- 97:102 Societal and Educational Applications of Earth Science Concepts and Topics arr.

**Special Rules**

Since the General Science Program involves large numbers of students heading for a variety of professional and graduate areas, large numbers of faculty advisors, and general colleges and departments, some special rules and regulations have been approved by the General Science Advisory Committee of the College of Liberal Arts (consisting of the department executive officers of biochemistry, botany, chemistry, geology, physics-astronomy, microbiology, zoology, and general science). These special rules include:

- At least ten semester hours of graded credit in science must be earned at The University of Iowa.
- Transfer students using any of the joint programs must complete their last 30 semester hours in residence in the College of Liberal Arts at The University of Iowa in order to be eligible for the B.A. or B.S. degree one year later.

General Science majors should meet their language requirement with German, French, or Russian. An academic adviser may approve the use of another language if there are circumstances making such a choice advisable. Letters approving other languages are filed with the student's record in the Registrar's Office.

**No "11" numbered science core courses or credit from the CLEP National Science General Examination may be used toward the major in General Science (44 or 48 semester hours).**

Science courses taken in other colleges within the University (for example, Colleges of Engineering and Medicine) will not be accepted toward the 44 or 48 semester hours needed for the major unless one of the science departments of the College of Liberal Arts listed above certifies in writing to the Registrar's Office that such a course is equivalent to one offered or required of majors in that department.

No courses taken in the three departments used for the major (non-teaching, health-related, or teaching) may be taken Pass/Fail. Grades from all courses in these three departments used for the General Science major will be used in computing a student's grade-point average for the major both at The University of Iowa and overall.

Since mathematics forms an integral part of so many aspects of modern science, all General Science students are urged to obtain numerous appropriate advanced courses in both pure and applied mathematics (including statistics and computer science) in order that they may be qualified at a later date to do graduate work and quantitative research.
Genetics

Program Head: G. Dawson Harshman
Faculty professors: Roger Chabot (Biochemistry), John Novak (Molecular Biology), Joseph Humez (Zoology), Joan Nowakowski (Pharmaceutical Biology), José Cano (Zoology), John Angell (Biology), John Menninger (Biology), Roger Miller (Geology), Peter Lovering (Geology), Kevin Ornati (Psychology), Hans Ebeling (Pediatrics), associates: Antone Maier (Biochemistry), Raymond Cowie (Physiology), John Gersten (Botany), Michael Hales (Microbiology), Gary Ascoli (Zoology), Mark R. R. Sad (Zoology), Jing Wang (Psychology), David Water (Biostatistics)

The Interdepartmental Ph.D. Program in Genetics

The Interdepartmental Ph.D. Program in Genetics is designed to promote collaborative investigations and strong intellectual interchange among individuals studying genetics and faculty participants who may be formally affiliated with 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, course requirements are nevertheless flexible enough to permit students to tailor their formal coursework to fit their individual needs. All students enrolled in the Interdepartmental Genetics Ph.D. Program are required to take three specific courses—General Biochemistry, Advanced Genetics, and Seminar in Genetics and Genomic Science. Additional courses in general science, mathematics, and quantitative and population genetics; students are required to elect three seminar hours of courses in each of the three areas. Additional courses in genetics or related disciplines can be elected to provide supplementary background in the student's particular area of specialization.

Even more important than formal coursework is the opportunity to do meaningful research. Faculty members participating in the Ph.D. Program in Genetics are highly active, actively publishing research programs. Students are encouraged to enter the laboratory of their choice and begin their own research as quickly as possible. Research interests of the program include a large degree of breadth from bacteriology to human medical genetics. In each area of genetics there is a group of faculty members with closely related or overlapping interests. In addition, the University is strong in several related disciplines, including microbial physiology, enzymology, biochemistry, developmental, cell and population biology, all of which contribute significantly to the overall training program. In addition to research and coursework, students must also pass a comprehensive examination, which should usually be taken within the first two years of the program.

Entrance Requirements

It is expected that prospective students will have a strong undergraduate background in science and a strong commitment to research and teaching in genetics. Students should have taken courses in general genetics, genetic biochemistry, introductory physics and mathematics. Deficiencies in a particular area can be made up during the first year of graduate study. Criteria for admission include undergraduate academic record, performance on the Graduate Record Examination (GRE) verbal, quantitative, and analytic section scores, and letters of recommendation. Requirements for admission are not rigid. Although almost all students currently in genetics at Iowa have undergraduate grade-point averages greater than 3.2 and GRE verbal plus quantitative (excluding English) students with lower GPA's or GRE scores may be admitted depending on other indicators of their academic potential. Applications for admission will be accepted at any time but should be received by February 15 to insure consideration for the following academic year.

Financial Aid

The most highly qualified applicants will be supported as National Institutes of Health predoctoral trainees. Traineeships include a stipend of $3,900 for 12 months, complete tuition scholarships and additional support for travel to research training. In addition, stipends will be supplemented by occasional teaching or research. (Trainees are encouraged to do some teaching as part of their development as scientists and teachers.)

Students may also be supported by full-time teaching or research assistantships, with stipends of about $5,000 per year. Students receiving assistantships may qualify for full or partial tuition scholarships.

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, Botany, Microbiology and Zoology offer degree programs in which students may specialize in a particular aspect of genetics. Students are referred to the individual descriptions elsewhere in the Catalog for further information about these programs. The following genetics courses are available to graduate students in the Genetics Program:

109:78 Advanced Genetics (same as 2178, 6117, 37:78)
2104 Cytogenetics
2160 Genetics and Biogenesis of Cell Organelles
2135 Genetics Seminar (same as 95-215, 61215, 37:215)
55-175 Human Genetics
61-170 Microbial Genetics
61-175 Microbial Genetics Laboratory
61-270 Topics in Molecular Biology
37:180 Population and Evolutionary Genetics
37-125 Behavioral Genetics
37-185 Quantitative Genetics
37-171 Molecular Genetics
37-172 Topics in Molecular Genetics
37-173 Molecular Genetics Laboratory
37-175 Topics in Evolutionary Genetics
37-176 Topics in Evolutionary Genetics Laboratory
37-250 Developmental Genetics
37-265 Studies in Behavioral Genetics
1.5 h.
The Undergraduate Program

The Geography faculty has developed an undergraduate instructional program which provides educational opportunities for a variety of students: (1) for the nonmajor interested in one or more elective courses as they relate to a liberal education, or for those interested in electing a cluster of courses in conjunction with another discipline or for the B.S. degree; and (2) for those interested in acquiring a major in geography. The Department also offers significant interdisciplinary programs involving regional, urban, and environmental components.

Courses for the Nonmajor

Students in the College of Liberal Arts or other schools and colleges of the University who do not plan to major in geography may find meaningful such courses as 44:116 Urban Political Geography, 44:128 American Wilderness: Environments and Issues, 44:136 The Inner City, 44:139 Urban Problems, 44:162 The Third World, 44:165 The Changing World and 44:191 Energy in Contemporary Society.

Students in several related disciplines and in the Bachelor of General Studies program take clusters of courses in geography according to their individual interests. Those specializing in environmental studies might elect such upper-level courses as 44:101 Introduction to Weather and Climate, 44:119 Natural Environment Law, 44:120 Natural Hazards, 44:121 Stream Processes and Water Resources, 44:122 Natural Resources of the United States, 44:123 Geography of Natural Resources, 44:123 Environmental Impact Studies and 44:160 Field Techniques in Natural Environmental Problems.

For students interested in a cluster of advanced courses in urban studies, the Department offers 44:111 Introduction to Urban Transportation, 44:116 Urban Political Geography, 44:135 Urban Geography, 44:136 The Inner City, 44:137 Metropolitan Growth and Development and 44:138 Urban Problems.

Students in business may benefit from taking such locational analysis courses as 44:30 Introduction to Economic Geography, 44:330 Location of Services and 44:332 Industrial Location.

Alternative Programs for the Undergraduate Major

Students electing to major in geography will be exposed to concepts and methods of inquiry in physical, economic, social and political geography. They will be taught how to state problems from a geographic point of view, where and how to find relevant data for analyzing these problems, how to relate their findings to existing theories and how to apply their findings to real world situations. Students majoring in geography may choose alternative programs depending on their interests. The substantive strengths of the Department fall into four areas: environmental studies, urban and regional studies, locational analysis, and international development studies. Students may choose to develop expertise in one of these areas, or they may choose to 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 degree. Those who wish to pursue a liberal arts objective are advised to elect the Bachelor of Arts degree.

All geography majors must complete a minimum of 20 semester hours of geography coursework, at least 15 of which must be at the 100-level. All majors will find that they will need more than the minimum requirements for mastery of a specific subfield.

All majors must complete the course 225:127 Applied Statistical Methods and Computation, or its equivalent as approved by the department chairman or recommendation of the student's adviser, and 44:150 Undergraduate Seminar for Geography Majors. Other than these two courses, the requirements vary with the specific program selected by the student. Bachelor of Science students must complete either 225:27 Introduction to Computing with MICRO or 225:16 Introduction to Programming with PIJ with consent of advisor, and 225:25 Calculus I.
Environmental Studies

The undergraduate program in environmental studies is designed for students with career expectations or personal interests in resource management or environmental protection, or who have interests in physical geography per se. The program provides a knowledge of physical processes in landform development, atmospheric conditions, soil development, and biotic communities. It stresses the interrelationships among these processes and gives the student knowledge necessary to assess the impact of human activities on physical systems. Training in field observation, quantitative analyses, computer methods and cartographic representation is included in this concentration.

Required courses include: 225:127 Applied Statistical Methods and Computations, 44:160 Undergraduate Seminar for Geography Majors, 44:180 Field Techniques in Natural Environmental Problems and 222:7 Introduction to Computing with FORTRAN or 222:15 Introduction to Programming with PL/I with consent of advisor, or 222:25 Calculus I. Students concentrating in environmental studies are advised to select substantive courses from among the following:

44:1 Introduction to Human Geography
44:2 Natural Environment and Man
44:101 Introduction to Weather and Climate
44:119 Natural Environmental Issues
44:120 Natural Hazards
44:121 Stream Processes and Water Resources
44:122 Natural Recourses of the United States
44:123 Geography of Natural Resources
44:125 Environmental Impact Studies

Also recommended are: 44:100 Maps and Mapping and 44:108 Computer Methods in Geographical Analysis. Under the direction of an advisor, students should select courses in related disciplines from among the following:

12:110 Geologic Remote Sensing
12:112 Geologic Field Methods
12:171 Geomorphology
34:170 Population and Society
34:175 Introduction to Demography
62:133 Economic Growth and Environmental Decay
37:126 A Planet in Crisis
527:10 Technology of Environmental Pollution Control

Urban and Regional Studies

Students with interests in urban and regional analysis will find this concentration valuable, either as background/training for pre-law or as preparation for entry-level positions in government and private businesses. This concentration focuses on the problems and potential of towns, cities, and regions, and on decision-making processes of individuals and institutions. Dealing with such problems as assessing site-development potential, locating public facilities and guiding neighborhood change brings the student inside the dynamic of contemporary cities. Requisite skills in quantitative analysis, cartography and computer usage are developed. Opportunities for experience in working with real problems are included.

Required courses are:

225:131 Statistical Methods with Applications
44:138 Spatial Organization
44:150 Undergraduate Seminar for Geography Majors
222:7 Introduction to Computing with FORTRAN or
222:16 Introduction to Programming with PL/I (with consent of advisor)

222:25 Calculus I

Students concentrating in urban and regional analysis are advised to select substantive courses from the following:

44:1 Introduction to Human Geography
44:2 Natural Environment and Man
44:111 Introduction to Social Geography
44:130 Introduction to Economic Geography
44:201 Transportation in the USA:

Issues and Problems
44:35 Introduction to Urban Geography
44:111 Introduction to Urban Transportation
44:118 Urban Political Geography
44:130 Location of Service
44:132 Industrial Location
44:135 Urban Geography
44:136 The Inner City
44:137 Metropolitan Growth and Development
44:199 Urban Problems

Also recommended:

44:107 Maps and Mapping
44:109 Computer Methods in Geographical Analysis

Under the direction of an advisor, students should select courses in related disciplines from among the following:

113:119 Urban Anthropology
16:167 The City in American History
30:111 Municipal Government and Politics
34:172 Spatial Dynamics of Urban Life
102:102 Case Studies: Urban and Regional Planning
102:108 Housing Analysis
62:135 Regional and Urban Economics
62:137 Problems in Urban Economics

Locational Analysis

The concentration in locational analysis is designed for students who wish to gain expertise in this more traditional problem-solving facet of human geography. Students learn to use modern technology to help them calculate solutions to such location problems as selecting the best site for a store or public facility, estimating demand in an area, developing models of consumer behavior and gauging the impact of locational decisions.

The required professional courses include:

225:127 Applied Statistical Methods and Computations
44:138 Spatial Organization
44:150 Undergraduate Seminar for Geography Majors
44:108 Computer Methods in Geographical Analysis
222:16 Introduction to Computing with FORTRAN
Students concentrating in locational analysis are advised to select substantive courses from the following:

44:1 Introduction to Human Geography
44:2 Natural Environment and Man
44:18 Natural Environmental Issues
44:30 Introduction to Economic Geography
44:39 Introduction to Urban Geography
44:127 World Food Problems
44:139 Industrial Location
44:181 African Development
44:162 Trade, The Third World
44:185 The Changing World
44:191 Energy in Contemporary Society

Under the direction of an advisor, students should select courses in related disciplines from among the following:

65:100 Microeconomics
65:113 Health Economics
65:141 Industrial Organization
68:141 Introduction to Operations Research
68:124 Marketing Research
102:108 Housing Analysis

International Development Studies

The concentration in international studies is designed for students interested in international affairs; in the economic, social, and political development of new and old nations in the solution of regional problems that have global implications; and in cross-cultural comparisons of different values. This concentration aims to give students a deeper understanding of the world in which they will live and work by emphasizing the variety of cultures and societies which exist outside of the United States and to which our country must relate.

Required courses include:

225:127 Applied Statistical Methods and Computations
44:138 Spatial Organization
44:150 Undergraduate Seminar for Geography Majors

Students interested in this area of study are advised to select courses from among the following:

44:1 Introduction to Human Geography
44:2 Natural Environment and Man
44:18 Natural Environmental Issues
44:30 Introduction to Economic Geography
44:39 Introduction to Urban Geography
44:127 World Food Problems
44:139 Industrial Location
44:181 African Development
44:162 The Third World
44:185 The Changing World
44:191 Energy in Contemporary Society

Under the direction of an advisor, students should select courses in related disciplines from among the following:

30:60 Introduction to World Politics
30:160 Politics of Modernization
30:162 International Relations
30:185 Politics of War and Peace
30:127 Policy Problems in Industrial Societies
86:123 Political Economy of the Military-Industrial Complex
86:126 Economic Development in Underdeveloped Areas
18:147 Marxism and Social Thought
18:170 Modern African History
18:199 Modern China

Appropriate foreign language training might also be a part of the student's training.

Individual Programs

If none of these four alternatives is appropriate, students may design their own individual programs of instruction with the help of their advisors. Such programs, however, must include 225:127, 44:138, and 44:150.

The Cooperative Education Program

The Department of Geography is a participant in the University's Cooperative Education Program, which provides opportunities for both undergraduate and graduate students to secure cooperative training assignments related to their academic programs.

The Graduate Program

The goals of the Department at the graduate level are to prepare students to carry on creative and productive research in geography involving the use of theory, modeling and formal verification methods; to prepare students for positions in research, teaching, or applied geography; and to help students develop their abilities to apply knowledge of facts, theories, and methodology to specific societal programs. The achievement of these goals is demonstrated in large measure by the demand for Iowa graduates to fill positions on college and university faculties, in research-oriented institutions and in business and government.

The graduate program at Iowa is concerned with the locational analysis of physical, economic, social and political phenomena; the spatial aspects of human behavior; and the interaction of humans and their environment.

The Department offers specialized instruction in the teaching of geography at the college level (44:208 Teaching College Geography and 44:306 Research Seminar: The Teaching of Geography) for those interested in academic careers. Opportunities are provided for all graduate students to gain practical teaching experience through service as departmental teaching assistants or through other supervised teaching duties. Graduate students who plan to become college teachers are strongly encouraged to complete 44:208 Teaching College Geography.

Master of Arts Programs

The Department offers two programs leading to the Master of Arts degree, with and without thesis. Within this framework, there are two major options for students who wish to prepare for positions in research or teaching; the other for students who are interested in some area of applied geography.

Students whose objective is the Master of Arts degree leading to a career in teaching or research are required to complete a minimum of 30 semester hours of graduate work, with 15 semester hours must be 200-level courses or above, including a minimum of two units of 44:201-202 Geographical Analysis I-ll and 44:208 Quantitative Analysis I. The remainder of
their programs must be composed of graduate-level courses or research seminars as approved by the faculty and the student's adviser. A maximum of six semester hours of credit must be earned by the satisfactory completion of a thesis for those who wish to take the Master of Arts degree with thesis. All students must pass a final examination.

Students whose objective is the Master of Arts degree leading to a career in some area of applied geography (commonly referred to as the Master of Arts program in applied geography) are required to complete a minimum of 30 semester hours of graduate work, of which 15 semester hours must be 200-level courses or above, including a minimum of two units of 44-201-202 Geographical Analysis I & II, 44-204 Quantitative Analysis I, and 44-300 Seminar in Applied Problems. A computer language course, a cartography course in its equivalent and 44-206 Quantitative Analysis I, are required as prerequisites for 44-300. The remainder of the program will be composed of courses in geography and related departments as approved by the student's faculty adviser. Students are advised that it is possible to complete the Master of Arts program in applied geography in one year if they enter with sufficient background. Those whose background is not adequate should plan additional time. All students must pass a final oral and/or written examination. The coordinator of the program will conduct an initial screening and advising of incoming students. An appropriate adviser in the student's specified area of interest will be assigned as is tailoring a program to suit the needs of the student. Schedule of courses has been formulated and may be used as guidelines. Students should inquire about the interdepartment program.

Doctor of Philosophy

Students whose objective is the Doctor of Philosophy degree are required to complete eight units of 44-201-202 Geographical Analysis I & II and 44-204-205 Quantitative Analysis I & II. The eight units of coursework comprising 44-201-202 should be taken within the first two years in residence and must include mini-course offerings by at least six different faculty. The courses 44-204-205 should be taken during the first year in residence. Students may meet these requirements with a satisfactory performance in written examinations during the first week of the first semester for which they register.

All doctoral students must also complete two research seminars, preferably during their second year in residence, under the direction of different faculty members. Unless excused by the faculty, they are also required to register for 44-350 Research Seminar. Staff each semester while in residence. The semester hour of credit will be awarded each semester on a satisfactory/un satisfactory basis for this course.

The remainder of the Ph.D. program includes appropriate graduate courses, seminars, and research in geography chosen by students to reflect their area of interest. coursework in disciplines closely related to the student's objectives and interests, and courses which satisfy the core requirements.

No later than their fourth semester in residence, doctoral students should declare a field of specialization within their general areas of interest and secure a faculty advisor to direct their program of study.

Preferably during their second year in residence, and not later than the fifth semester, doctoral students who have been admitted to the graduate program without advanced credit must submit an original research paper to the faculty, with the approval of their advisor. Students who have been admitted with advanced graduate credit or 24 semester hours or more of the equivalent, must satisfy the requirement no later than their third semester in residence. The faculty will add to the major field of study the research in which they are qualified. Students become Ph.D. candidates when their qualifying examination has been accepted.

Research test requirements for Ph.D. candidates are the courses 44-209 Quantitative Analysis I and another appropriate course, as approved by the faculty at the time the student declares his or her specific area of specialization.

Upon passing the comprehensive examination, the doctoral candidate will prepare a research design to be presented before the staff seminar. After receiving the critical comments of faculty and students, the candidate is expected to conduct the necessary research and to present his or her findings in a dissertation which must be defended in a final oral examination.

All doctoral candidates are expected to have supervised experience as teaching assistants, instructors and research assistants before being awarded the Ph.D. degree.

Graduate Admission

In addition to the general rules and regulations set forth in the Manual of Rules and Regulations of the Graduate College, the Department determines the admission's undergraduate grade-point average, especially during his or her junior and senior years; scores on the Graduate Record Examination Aptitude Test; letters of recommendation from those with whom he or she has taken courses; and an essay in which the applicant sets forth the reasons for wanting to study geography at The University of Iowa.

An applicant with an undergraduate grade-point average between 3.3 and 2.75 will be admitted only for the M.A. degree and on the condition that he or she attains a grade-point average of 2.75 or better on the first 12 hours of graduate work as approved by the Department.

Foreign students and others from under-graduate institutions which evaluate students on a basis other than grade-point average will be considered according to their relative academic standing in their respective institutions.

Financial Assistance

A number of graduate appointments as teaching or research assistants are available. Awards are based on merit and, to be appointed to a teaching or research assistantship, the student must have achieved a combined score of 1100 on the GRE Verbal and Quantitative examinations and have a 3.0 undergraduate or graduate grade-point average. Applications for graduate appointments are usually considered at the end of the second week in February.

Special Facilities

The Department possesses substantial equipment in the computer-mapping area, including a Graf equa digitizer supported by the MILACO-POOS mini-computer with a CRT for on-line editing of digitizing work and a hard copier. The University has an IBM 280 Modem Model 65 computer, a Cyber 71 computer, and a LACOMP digital available to the Department. In addition, an HP 2000F system with telexive terminal is available for instructional use. The Map Library contains more than 75,000 maps, a total of 2000 atlases and reference works, and
most hiring agencies as the working degree in geology. However, an undergraduate degree is fully satisfactory in certain teaching, federal, and industrial situations. Many of Iowa's geology graduates find employment with the petroleum industry in exploration geology and geophysics. Others continue in graduate school or take jobs with government or conservation agencies. Some intend to enter law, business, or other fields such as urban planning, environmental studies, engineering, archaeology, science education, or oceanography as advanced areas. Geology is suited to all these.

The program at Iowa stresses the basic aspects of geology more than 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 facility (invertebrate, vertebrate, paleoecology), a terrestrial link to the University Computer Center, the State Geological Survey within the Geology building, and research equipment for fields such as mineralogy, petrology (igneous, sedimentary, and metamorphic), remote sensing, and evaporation geoscience.

Geology majors receive at least an academic year's work in allied scientific areas—physics, chemistry, biology, and mathematics—in addition to a course in each major area of geology. Each year more than 1,000 students enroll in Earth Science 112: Earth History and Resources and 112:44 Men and His Physical Environment, a team-taught, laboratory lecture course designed to fulfill the College of Liberal Arts requirement for natural science core studies. Other offerings for nonmajors include a lecture sequence for persons interested in a general survey of geology, and several advanced courses with few prerequisites—paleontology, geology of the foreland, evolution of the vertebrates, a planet in crisis, minerals and world affairs, geomorphology, oceanography, and use of native materials.

Undergraduate Programs

Students majoring in geology must meet the general requirements of the College of Liberal Arts. It is recommended that they satisfy the language requirement with French, German or Russian, and the social science requirement with approved courses in economics, geography and/or anthropology.

Bachelor of Science Degree

The Bachelor of Science professional program is designed primarily as preparation for graduate study and for employment in industry. Required courses in this program (12.5 and 12.6 are the preferred introductory courses for geology majors):

Geology Courses

12.5 Introduction to Geology 4 s.h.
12.6 Evolution of the Earth 4 s.h.
12.44 Mineralogy 4 s.h.
12.52 Elementary Petrology 4 s.h.
12.113 Summer Field Course 6 s.h.
12.121 Principles of Paleontology 3 s.h.
12.121 Structural Geology I 4 s.h.
12.129 Structural Geology II 3 s.h.
Two elective geology courses 6 s.h.
Total 38 s.h.

Supporting Sciences

The geology major requires at least 10 semester hours of college mathematics, including a minimum of one semester of Math 23 Calculus I or Math 23 Engineering Calculus I. Computer science or statistics courses may be counted toward the 10-hour requirement. Additional math (22.5 Calculus, 22.54 Calculus III, or 32.55 36-37 Engineering Calculus II-III) is highly recommended.

Eight hours of physics, eight hours of chemistry, and one one-semester lab course of college zoology or botany also are required.

Bachelor of Arts Degree

The B.A. program is designed to provide a general background in geology, with a broader choice of electives than in the B.B. program, for students who are not planning to become professional geologists. With appropriate coursework in education, the B.A. program provides a base for high school or community college teaching. A general background in geology and allied fields is also applicable to interests in such areas as conservation and environmental problems. Course requirements:

Geology Courses

12.5 Introduction to Geology 4 s.h.
12.6 Evolution of the Earth 4 s.h.
12.44 Mineralogy 4 s.h.
12.121 Principles of Paleontology 3 s.h.
12.116 Field Trip (two sections) 4 s.h.
Geology electives 18 s.h.
Total 36 s.h.

Mathematics

Ten semester hours of university-level mathematics, with one course in computer science or statistics.

Related Areas

Eight semester hours of chemistry, and recommended courses in other sciences and social sciences appropriate to the student's objectives.

Joint Programs

Joint programs can be arranged, typically with chemistry, physics, zoology, and anthropology.

Original Research

A junior or senior who is ready to pursue original research for credit may assist a faculty member or graduate student with a current research project, or initiate a small-scale project involving a combination of field, laboratory, and library investigation. Independent study is encouraged. Undergraduate classes have produced term reports which subsequently were published.

The honors Program

A degree "with Honors" in geology is offered. Students in the Honors Program can elect a senior thesis.

Graduate Programs

Students planning to take graduate work in geology should have completed geology and supporting courses equivalent to those required of undergraduate geology majors at Iowa. Certification may be remediated at the beginning of graduate study, 12.107.
Geologic Orientation is required for all entering graduate students. All graduate students in geology are required to perform teaching, research, or other appropriate services for the Department, 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.

The Master of Science Degree

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 a specialized program at the master's level.

Entering graduate students are assigned to a general graduate adviser. Below the end of the second semester, the student should have selected a research area and related thesis topic. The chair then confirms a thesis adviser and two additional faculty members, who form the student's advisory committee. The student is responsible for getting the committee's approval of a suitable program of coursework, and for satisfactory development of research plans as outlined in a thesis proposal which is submitted for committee approval.

The degree requires at least 30 semester hours of credit in graduate level coursework, including not more than eight semester hours of thesis and research credit, and at least 24 hours in residence at 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. Coursework taken to satisfy these requirements does not count toward the semester-hour requirements for the Ph.D.

To qualify for the four-year examination, the candidate must have at least a 2.75 (A=4) grade-point average on University of Iowa graduate courses offered toward the degree.

The Master of Science Degree with Thesis

Students are encouraged to select thesis topics involving a variety of geological subdisciplines and scientific skills. Research topics might include fieldwork in mapping, laboratory experiments, analytical work, or some combination.

The Master of Science Degree without Thesis

Relatively few students are encouraged to pursue this program, which requires that the applicant have approximately three months of experience working under supervision of a professional geologist, or equivalent experience in some phase of geologic activity.

If possible the student should receive prior faculty approval to satisfy the experience toward the degree.

The student must submit a written report on the activity and on the geologic principles it involved and its value and broader applications and implications. No college credit is granted for this activity.

The M.S. degree without thesis requires at least 39 semester hours of graduate coursework, of which at least eight hours must be earned in other departments of the University.

The faculty in Geology may also require the students to submit a formal scientific report dealing with an appropriate subject or project. Credit may be granted for this activity.

The final examination covers coursework and work done in the thesis.

The Master of Arts in Teaching (Earth Science)

This program enables students to combine certification to teach secondary school with participation in a specialized graduate curriculum. Awarded by the College of Education, the M.A.T. degree requires at least 25 semester hours of graduate study in professional education and at least 18 hours of graduate coursework in earth science.

The Doctor of Philosophy Degree

The Doctor of Philosophy degree in Geology requires at least 72 semester hours of graduate coursework, including at least two full-time semesters in residence beyond the first 24 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 by satisfactory completion of a two-year sequence.

French, German, and Russian are languages which may satisfy departmental requirements; economics and computer science are suitable tool areas. In exceptional circumstances the faculty may approve other languages or tool requirements.

Courses in such related disciplines as botany, chemistry, physics and zoology are not regarded as satisfying tool requirements, although they may provide indispensable background for the various areas of geologic specialization.

Coursework taken to satisfy language and tool requirements may not be applied to credit requirements for the degree.

These are minimum requirements: Satisfactory course requirements for the M.S. degree in geology at Iowa. Where appropriate, additional work in one area may be approved as satisfying requirements in another.

An appropriate graduate course in another discipline. Courses crosslisted between Geology and other departments are not generally considered to meet this requirement.

At least 24 semester hours of graduate coursework, exclusive of credits for dissertation research and beyond coursework applied toward the M.S. degree. The comprehensive examination covers—in depth—all subdivisions of one major field and one subdivision in each of three other major fields. It is also presumed that the doctoral candidate is proficient in the basic elements of general geology, as presented by current expository textbooks. These are the major and minor fields:

- Economic Geology
- Petroleum Geology
- Economic Deposits
- Mineral Economics
- Petroleum-Mineralogy
- Igneous and Metamorphic Petrology
- Experimental Petrology
- Structural Geology
- Geotechnics
- Structural Analysis
Field Trips
Field trips are integral parts of several courses in geology. Weekend and interest events are frequent. Iowa City is situated in the midst of the lofty fossiliferous Paleozoic bedrock. Marine and terrestrial fossil assemblages, extensive reefs, and unique gneissic sites are available within a few hours' drive. All four Pedestrian excursions are represented in Iowa and each offers distinctive landforms and fossil assem- blages. Spring sessions provide time for longer trips which are available to all geology students. In recent years these have included the Grand Canyon, the Florida Keys, the southern Appalachians, the Big Bend Region of Texas and the Ozarks. Advanced seniors and graduate students visit Colorado, Ontario, Kansas, Oklahoma and California.

Courses
Primarily for Undergraduates
12:1 Lectures in Earth History and Resources 2 s.h. Not open to students who have had 11:23, 11:25, 11:26 or 12:6. See 12:2 for description.
12:2 Lectures in Physical Environment 2 s.h. Not open to students who have had 11:24, 12:23, or 12:26. 121 and 122 examine ancient and modern environments and with the earth and processes by which they formed; evaluation of organisms and man's current use and misuse of physical environments. Emphasis is on physical environment.
12:3 Principles of Physical Geology 2 s.h. Introductory course covering processes that have generated and are currently affecting our physical environment, composition and characteristics of the earth, human and non-human, the atmospheric, hydrospheric, geologic, and environmental. Open to all who have not had previous college courses in geology or earth science.
12:4 Principles of Historical Geology 2 s.h. Introduction to the principles and procedures which enable geologists to recognize the billion years of earth history, emphasize on geologic time, nature of the geologic record, bias of the paleontologist, physical and geological setting of rocks and the formation of deposits. Emphasis is on the geologic time scale. Open to any student who has not had a previous course in historical geology.
12:5 Introduction to Geology 4 s.h. Lectures and laboratory, lecture topics include rocks and minerals, weathering, soils, erosion, landforms, glaciation, mountain building, earthquakes and meteor of earth; several field trips involved. Recommended for science majors and liberal arts students majors; not open to students who have had 11:23, 121 or 125.
12:6 Evolution of the Earth 4 s.h. Lectures, laboratory, dissection and field trips, teaching the observed and inherited features of the earth in historical perspective. Topics include origin of the earth, history and evolution of the earth's surface, dynamic history of geologic events, nature of the fossil record, an introduction to minerals, rocks, fossils and methods of geological analysis. Prerequisites: 12:3 (recommended), 11:39 or 12:3; for prior registration in 12:4.
12:9 Geology of Iowa 2 s.h.
12:10 Seminar in Investigation of the sequence of events in geological history and its implications for mankind, the environment and geologic resources. Recommended for students with a previous course in geology or earth science.
12:11 Honors Thesis in Geology
Prerequisite: consent of department.
12:16 Field Trip 2 s.h. Brief stop for study during earth science 121 in areas of geological interest, center of Florida, northern Arizona, Rio Grande, Texas, region of southern Appalachian Ohio, and Opportunity. Prerequisites: consultation. Consent of instructor.
12:21 Micromaps 4 s.h. Preparatory studies of minerals, examining crystalline, chemical properties, phase relationship and identification. Preparation: college earth science or geology and introductory chemistry, which may be taken concurrently.
12:32 Elementary Petrology 4 s.h. Lecture and laboratory dealing with principles of pedology and hand sample petrography for geology, sedimentary and metamorphic rocks. Prerequisites: 12:41.

For Undergraduates and Graduates
12:102 Physical Geology 3-5 s.h. Interdisciplinary course focusing on processes which have generated and currently affect our physical environment composition and characteristics of the earth, human and non-human, study and non-human, the atmospheric, hydrospheric, geologic, and environmental. Open to all who have had previous college courses in geology or earth science.
12:184 Historical Geology 3-5 s.h.
12:185 Geology of Burlington 1 s.h. Required course for all entering geology students.
12:186 Introduction to Geobiology 2 s.h. Survey of descriptive, chemical, physical, biological and geological aspects of the water world. Familiar with tools of life including, biology, physio and earth science in solution.
12:189 Principles of Geology 2 s.h. Lecture, lab, and field investigation of the sequences of events in geologic history with emphasis on the landscape, subsurface, and geologic resources of the state. Recommended for students with prior course in geology or earth science, not open to students who have had 12:1.
12:191 Geology Seminar 3 s.h. Seminar focusing on the earth's surface and processes, including aerial and satellite photography, remote sensing systems, methods, and data analysis using the electronic computer, including ancient, visible, infrared, and microwave radiation, application of remote

Cooperative Activities
The Department has joint professorships with the Iowa Geologic Survey and the Department of Botany and students sometimes work on projects for the Survey.
There is also cooperation between the Geology, Geography, Anthropology, Chemistry, Botany, Zoology, and Physiology and Biophysics departments in service, expertise, joint instruction and equipment.
complete a minimum of 24 semester hours of coursework in the Department beyond the basic prerequisites. The following course sequences or equivalents are required of majors who have had no previous experience with the German language:

**Basic Program**

**First and Second Year**

1311:1 First-Semester German 3 s.h.
1312:2 Second-Semester German 3 s.h.
1321:3 Third-Semester German 3 s.h.
1322:4 Fourth-Semester German: Reading 3 s.h.
1323:4 Fourth-Semester German: Elementary Composition and Conversation 3 s.h.
(1323 and 1323 may be taken concurrently, if desired, or in either order.)

**Third Year**

1331:5 Introduction to Modern German Literature I 3 s.h.
1332:5 Introduction to Modern German Literature II 3 s.h.
1333:5 Intermediate Composition and Conversation 3 s.h.
1334:5 Intermediate Composition and Conversation 3 s.h.
(1331 and 1332 must be taken in sequence; 1333 and 1334 may be taken in either order and concurrently with 1331 and 1332.)

**Fourth Year**

1310:6 Advanced Composition and Conversation 3 s.h.
1310:6 German Cultural History 3 s.h.
1311:6 Survey of German Literature 3 s.h.
1312:6 Survey of German Literature 3 s.h.
(1311 and 1312 may be taken in either order.)

All courses, with the exceptions noted above, are to be taken in sequence after initial placement, unless a variation in the sequence is approved by the faculty.

Students who intend to go on for an advanced degree are encouraged to add 1310:6 German Phonology (three semester hours) to the above.

German majors, graduate as well as undergraduates, are urged to supplement their degree programs with relevant courses in German history, philosophy, etc.

A student with native proficiency in German may declare German only as a second major and is expected to complete a full first major in a subject in which he or she has no such obvious advantage over his or her peers.

**Teacher Certification**

Because the College of Education requirements for teacher certification are not in line with the current requirements of the major in German, it is imperative that the student consult with the Department of Education or undergraduate advisor to help ensure the successful completion of the certification program.

**The Teaching Minor**

In addition to the basic program of the first and second year, these courses or their equivalents constitute a teaching minor in German:

1331:5 Introduction to Modern German Literature I
1332:5 Introduction to Modern German Literature II
1333:5 Intermediate Composition and Conversation
1334:5 Intermediate Composition and Conversation
1310:6 Advanced Composition and Conversation

**Honors in German**

German majors of junior or senior standing with a grade-point average of at least 3.0 overall and 3.5 in German may enroll in this program. During the junior and senior years the Honor Student in German is expected to engage in expository readings, discussions, and the writing of a term paper (if feasible) for each of the courses in which he or she is enrolled. A senior essay, written under the supervision of a faculty member, and a comprehensive oral examination terminate the program.

**Special Facilities**

- Students have the opportunity to improve their comprehension and command of German by working with recorded materials in the Language Media Center. Students may also benefit from our new Computer-Assisted Instruction program.
- An extensive collection of works and periodicals in the University Library facilitates research in all major areas of German literature and Germanic linguistics at all levels of study.

The Foreign Language House is available to undergraduate and graduate students as an on-campus housing option.

**Foreign Study**

The Department of German participates in the Regents' Summer Program in Austria. Sponsored by the three Iowa Regent universities, this program is open to students of all disciplines and is designed to provide a sound linguistic, cultural and academic experience to all participants.

A three-week session is conducted at St. Radegund, near Graz, Austria. Instruction in both language and culture is provided on three levels—intermediate, advanced, and very advanced. 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 optional cultural tour of Germany concludes the program.

To participate, the student must be admitted to one of the three Iowa Regent universities for the summer session. Applicants should have a solid 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. Graduating seniors are eligible to apply. All students are expected to speak only German while participating in the program.

Tuition grants are available for qualified applicants. For further information, write to the Department of German.

**Financial Aid**

Teaching assistantships and tuition scholarships are available for qualified graduate students. The Department awards the Wilson and the Funkel prizes to students of distinction.
Graduate Study Requirements

Master of Arts Degree with Thesis

Unsatisfactory students of German who do not meet or sustain interest in and potential for productive scholarship and who plan to continue to the doctorate should drop the program with thesis. The thesis 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 "Graduate College"). If the student has not completed major courses, or equivalents, in the Department's undergraduate program, he or she will include them along with the courses required for the Master of Arts. Under some circumstances, the candidate may qualify for graduate credit for such work.

In consultation with the graduate adviser, the student should select courses which represent a balanced approach to the field. Some courses may be required of all graduate students.

With the graduate adviser's approval, some of the 30 semester hours required for the degree may be taken outside the Department. In such related subjects as philosophy, history, linguistics, or other languages.

Normally two semester hours of credit may be required for satisfactory completion of the thesis. The thesis may be either a literary or linguistic study, and is subject to the approval of the faculty. A student planning to continue to the Ph.D. degree is expected to write a thesis. Before the M.A. exam can be administered—usually after acceptance of the M.A. thesis—the candidate must show a competence level in a foreign language other than German equivalent to two years of college study for students of high school study, with a grade of "B" or higher.

M.A. Degree Without Thesis

A graduate student who desires his or her program to be oriented in the direction of optimum preparation for secondary school teaching, government service, translation, etc., may elect the one without thesis. This program requires a minimum of 36 semester hours of coursework and leads to a terminal degree. The same course requirements outlined for the M.A. with thesis apply to candidates for the M.A. without thesis, however, students in this program should, with the approval of the graduate adviser, select those courses which will best prepare them for their chosen career.

Doctor of Philosophy Degree

The Ph.D. degree is awarded upon the satisfactory completion of a minimum of 72 semester hours of graduate credit and fulfillment of other requirements of the Department of German and the Graduate College (see "Graduate College"). With a concentration in either Germanic linguistics or German literature.

Credit received toward the M.A. degree is normally applied to the Ph.D. The remainder of the program is planned by the candidate in consultation with the graduate adviser in such a way as to ensure satisfactory balance and concentration. The student may elect up to 12 additional semester hours of credit for satisfactory completion of the Ph.D. dissertation. Graduate courses outside the Department in related subjects may be counted toward the degree with the approval of the graduate adviser. Wherever possible, the Department will afford the opportunity to deserving graduate students to gain valuable teaching experience under supervision by making teaching assistantships available.

A candidate concentrating in literature must demonstrate a reading knowledge of French and of another language which fits in or her adviser certifies is pertinent to the student's research interests. For doctoral candidates in Germanic linguistics, a reading knowledge of French or Russian and of a modern Scandinavian language or Dutch is required. Competence in three languages may be demonstrated by two years of college study or for four years of high school study or an A grade in "B" or higher, or through testing. The requirements must be met before the comprehensive exams can be administered.

Courses

Courses in Translation

Of the courses offered by the Department, the following are in translation: 119, 124A, 124B, 125, 126, 140A, 140B, 145, 146W. The slate, semester hours of credit, and descibtion of these courses may be found in the complete course offerings which follow.

Primarily for Undergraduates

1310 German and Germanic Literature 3 s.h.
1311 Final-Semester German 3 s.h.
1312 Advanced German 3 s.h.

1313 Historical Elementary German 6 s.h.
1314 Advanced Freshman and sophomore courses. Additional hours of language literature will be required. Undergraduate only.

1315 Germanic Horizons and Literatures of the Modern Age 4 s.h.
1316 History of Germanic Literature, including Romance, Fantastic, Romantic, and Romantic Literature, etc. designed for before major and minor. (or have adequate undergraduate. Same as 111.

1321 Western German Literature 3 s.h.
Basic structure of German language continued, emphasis on exact reading, basis conversation and composition.

1322 Foreign-Language German. Reading 3 s.h.
Germanic languages continue, emphasis on foreign language requirements for B.A. degree, reading of literature

1322 Germanic languages continue, emphasis on foreign language requirements for B.A. degree, reading of literature

1322 Foreign-Language German. Reading 3 s.h.

1322 Germanic languages continue, emphasis on foreign language requirements for B.A. degree, reading of literature

1322 Foreign-Language German. Reading 3 s.h.

1322 Germanic languages continue, emphasis on foreign language requirements for B.A. degree, reading of literature

1322 Foreign-Language German. Reading 3 s.h.
The Undergraduate Program

Because students in history go into a variety of professions in business, public service, or journalism, many plan further training in history, law, religion, library science, or social work.

A major in history includes work in other fields which 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 work. In, for example, strongly recommended that the College of Liberal Arts degree requirement in a foreign language be met by selecting a language which fits in with the major student's history interests.

General Major in History

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, of which at least 12 semester hours must be in non-U.S. This limitation is imposed to assure acquaintance with the history of at least one other society besides our own.

Three semester hours in 16.51-Collegium for History Majors. A colloquium consists of a small number of students collectively studying problems in ways which 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, nine (including the three hours of colloquium) must be taken in residence at The University of Iowa.

A minimum of 18 to 18 semester hours in related courses in 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. Core courses and course taken to satisfy core requirements will not be counted toward the related-areas requirement.

It is recommended but not required that the student pursuing the general major meet the College of Liberal Arts Historical-cultural core requirements with 11-29-30 Problems in

Human History, 11-31-32 Western Civilization, or 11-55-58 Civilizations of Asia.

Prospective Teachers in History

Students majoring in history who wish to qualify for a teaching certificate must satisfy the historical-cultural core requirement by taking any of the following courses:

11-29-20 Problems in Human History, 11-31-32 Western Civilization, 11-55-58 Civilizations of Asia (a total of 8 s.h.) and complete the professional courses in the College of Education which are required for teacher certification (a total of 23 s.h.).

They must choose an area of concentration in history and meet these requirements: American History Concentration Courses in U.S. history 20 s.h. Courses in related areas 36-44 s.h.

Students must pick three of the following six related areas: economics, geography, world history (non-U.S.), political science, psychology, sociology. They must take 12 semester hours of courses in each of the three areas they choose, except psychology, in which they must take 20 semester hours. Courses in these subjects which have been used to satisfy the sociology core requirement may be applied to the required hours in related areas, but no more than one such course may be applied to any one related area.

World History Concentration Courses in non-U.S. history 20 s.h. Courses in related areas 36-44 s.h.

Students must pick three of the following six related areas: economics, geography, American History, political science, psychology, sociology. They must take 12 semester hours of courses in each of the three areas they choose, except psychology, in which they must take 20 semester hours. Courses in these subjects which have been used to satisfy the sociology core requirement may be applied to the required hours in related areas, but no more than one such course may be applied to any one related area.

Students seeking the teaching major in history should consult an advisor in Social Studies Education (see "College of Education").
Honors

The honors major is for students of superior ability who want an extremely flexible program enabling them to pursue special interests and enjoy the experience of 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 usually must be made by the beginning of the junior year, and may be made earlier. 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 of work in history, with at least nine hours in the Department's Honors offerings, which may include up to six semester hours of Honors theses credit. Colloquium courses may also be counted for Honors credit in lieu of Honors seminars.

Related courses outside the Department (same as regular major requirement).

Successful completion and oral defense of an Honors thesis.

Graduate Study

The graduate programs in History prepare students to teach in high schools or colleges, and for such positions as public relations, commercial research, and government or other public service. With additional specialized training, students of History become qualified for careers in archival library work, historical site preparation and display. Some students enter the program leading to degrees in both law and history (see "College of Law").

Qualified graduate students are invited to apply for fellowships and assistantships. Inquiries should be directed to the departmental office.

The Master's Degree

There are two M.A. programs in the History Department. The first is for students who plan to work for the Ph.D. degree. It requires a minimum of 30 semester hours of credit, including a comprehensive examination and a research essay. The candidate must earn at least 24 semester hours of credit in History. Twelve, including at least one seminar, must be in the area of the student's essay topic, and at least six must be in a second division, including either a seminar or a readings course.

The essay in the major division is based on original research and should be in the vicinity of 10,000 to 15,000 words in length. Work on the essay will normally begin in the seminar in the major division and be continued with 16-20 independent study. Graduate, in which rewriting will be completed under the guidance of the supervising professor. In exceptional cases where the essay committee in seminar is judged by that committee to be outstanding quality, other courses may be substituted for Individual Study.

Students who complete the M.A. under the alternative plan may not become candidates for the Ph.D. in History. The M.A. candidate must earn at least 24 semester hours of credit in History. Of these, at least 12 must be taken in one division, and must include at least one readings or seminar course. The program must also include at least six semester hours in each of two other divisions in History, or six hours in one other division in History and six hours in a related department. These courses must include at least one readings or seminar course in History.

After completing these requirements, or in the semester in which they are to be completed, the M.A. candidate must take an oral and written comprehensive examination in the major division.

Doctor of Philosophy

Students who earn the M.A. with research essay are admitted to the Ph.D. program upon the favorable recommendation of the examining committee. Students who earn an M.A. at another university must meet the general requirements for admission to the Graduate College (see "Graduate College") and must submit a maximum of their writing, such as a seminar paper or an M.A. thesis.

The candidate must earn at least 72 semester hours of credit, including credit for work done toward the master's degree. The 72 semester hours must include at least 24 semester hours in 200-level courses in History, at least 18 of these 24 hours must be completed before taking the comprehensive examinations, and at least 16 of these 24 hours must be completed at The University of Iowa. The candidate must take one examination each year for 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 tools of study. The candidate may not complete the comprehensive examination until these requirements have been met.

The comprehensive written and oral examination will cover 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, 1400 to 1815
- Europe, 1815 to Present
- Russia and the Soviet Union
- United States History
- Latin American History
- History of China
- History of Japan
- History of India

The committee may define and delimit the individual fields for examination. It may also set, separately for each field, the character of the written portion of the comprehensive examination, which may take the form of a syllabus, a critical bibliography, a topical paper, or any other form or combination of these or other forms that the committee considers appropriate. The oral portion of the comprehensive examination will focus on issues and problems arising from the examination papers.

Graduate Admission

All applicants for admission, whether for the first- or second-year program, must meet the general requirements for admission to the Graduate College. In addition, they must submit a statement of their writing—such as a term paper, seminar paper, or M.A. thesis—to the History Department. All applications for graduate study are due February 15 for the succeeding year. Applications for admission are due April 15 and November 10 for the following spring. An applicant must take the Graduate Record Examination (aptitude tests) in order to be considered for admission. An undergraduate history major is not required for admission to the graduate program.
Guide to Graduate Study

Further information on graduate study is contained in the Department's Guide to Graduate Study, sent to all applicants for admission. The Guide is revised every few years to include the latest changes in the faculty, the courses to be offered the following year, and the research interests of the members of the faculty, as well as detailed regulations on study toward advanced degrees and other information of interest to prospective students.

Special Facilities

The University Library is strong in all aspects of U.S. history. It houses the Henry A. Wallace papers and visited collections, as well as other unique materials. In European history, the space strengths are in French and English materials. The Iowa State Historical Society in Iowa City and the Herbert Hoover Presidential Library in West Branch possess additional research materials of great value.

Courses

All course numbers listed below 200 are open to freshmen provided they have already satisfied the historical culture core requirement. Most courses numbered below 200 are also open to transfer students. Most courses numbered 200 and above are open to transfer students only if they are fully satisfied.

18:01 Colloquium for Women Students 2 s.h.
Taught with various instructors, meet as required by consent of instructor. Offered every semester. May be repeated.

18:08 Introduction to Afro-American Studies 2 s.h.
Great works in anthropology, sociology, and history provide framework for introduction to social and cultural history of Afro-American society and culture.

18:08 American History 1850-1867 2 s.h.
This course is divided into four parts: Civil War and Reconstruction, with emphasis on social history of Civil Era and social, economic, and political developments of Revolutionary and early periods. (Taught with various instructors.)

18:08 American History 1917-1945 2 s.h.
This course is divided into four parts: Civil War and Reconstruction, with emphasis on social and political developments of the Civil Era, Progressive Era, Great Depression, and United States as a world power. (Taught with various instructors.)

18:12 Religious History in America 1851-1930 2 s.h.
Political, cultural, and religious developments from 1851 to 1930, with emphasis on intellectual currents of the period.

18:16 Culture and Politics of Latin America 3 s.h.
Emphasis is on cultural and intellectual history from colonial times to the present.

18:18 Individual Study I 2 s.h.
Reading books, depending on instructor.

18:20 Historical Background of Contemporary Issues 3 s.h.
Beginning major, may be repeated with the consent of the instructor.

18:31 Individual Study: Undergraduate 2 s.h.
Required for students who need to pursue subjects beyond or revisit existing courses. Prior arrangement with individual instructor is necessary. May be repeated.

18:32 History Tutorial 2 s.h.
Required for honors majors. May be repeated.

18:33 History Tutorial 3 s.h.
Required for honors majors. May be repeated.

18:16 Survey of Ancient Near East and Greece 3 s.h.
Social, economic, political, and intellectual history of ancient civilization from the sixteenth to the twelfth century B.C. to Julius Caesar's reign.

18:16 Survey of the Religious Relevance to Ancient Egypt 2 s.h.
Survey of the phenomena in Israel, Cato, and Hellenistic culture and the influence of Jewish culture.

18:16 Survey of European History 3 s.h.
European civilization from 1600 to 1800,

18:16 Survey of Early Medieval Civilization 3 s.h.
Course from the late Roman to the Middle Ages in European and Islamic civilizations.

18:16 Survey of Later Medieval Civilization 3 s.h.
Course from 1300 to 1500, with emphasis on intellectual and cultural developments.

18:16 Economic and Social History of Medieval Europe 3 s.h.
Economic patterns, demographic, and technological trends, 500-1500, emphasizing the impact on such groups as peasantry, knights, men and women, students, and merchants.

18:16 Prehistory of English Law 2 s.h.
This course is divided into four parts: Early English law, medieval law, and modern law, with a focus on political, social, and economic developments.

18:16 Medieval England 490-1520 2 s.h.
Linguistic, literary, and historical development from the time of the Roman conquest to the reign of Henry VIII.

18:16 Medieval Europe 1420-1640 2 s.h.
Primary emphasis on the development of the nation-state, the growth of the French and Italian states, and the development of the European economy.

18:16 History of the Medieval Church 2 s.h.
300-1500 A.D., the church in its relation to the new religious movements, the religious orders, and the Reformation.

18:18 Early Franses and the Rev of England 3 s.h.
Social and political history of England from the Reformation through Plantagenet feudalism.

18:18 Franses Middle Ages 1200-1500 2 s.h.
Historical approach to the Middle Ages and the impact of the Crusades on European civilization.

18:18 Society and Culture in Europe 1700-1850 2 s.h.
Reforms of the modern age; changes in world view, in the arts of painting, in social relationships, and in economics of society.

18:18 Age of the Absolutists 3 s.h.
The origin and growth of centralization; social and political developments of the 18th and 19th centuries.

18:18 Foreign Policy and Diplomacy 2 s.h.
The development of foreign policy and diplomacy in Europe from 1600 to 1914.

18:18 International Relations 2 s.h.
The development of international relations in Europe, with an emphasis on the role of diplomacy and the impact on international relations.

18:18 International Relations 2 s.h.
The development of international relations in Europe, with an emphasis on the role of diplomacy and the impact on international relations.

18:16 The Modern Industrial World 2 s.h.
Economic and social changes in the modern world, with an emphasis on the impact of industrialization on society and culture.

18:16 Economic and Social History of Modern Europe 2 s.h.
Economic and social changes in the modern world, with an emphasis on the impact of industrialization on society and culture.

18:16 European Intellectual History 1870-1939 2 s.h.
Intellectual currents underlying specific events in European history from 1870 to 1939, with an emphasis on the role of philosophy, science, religion, and art in shaping society.

18:16 Survey of France from the Renaissance to the Revolution 2 s.h.
The development of French thought from the Renaissance to the Revolution.

18:16 Survey of France from the Revolution to the Present 2 s.h.
The development of French thought from the Revolution to the present.

18:16 Survey of the French Revolution and Napoleon 2 s.h.
Survey of the French Revolution and Napoleon.

18:16 European Revolution 1640-1792 2 s.h.
Economic and social changes in the modern world, with an emphasis on the role of diplomacy and the impact on international relations.

18:16 European Revolution 1640-1792 2 s.h.
Economic and social changes in the modern world, with an emphasis on the role of diplomacy and the impact on international relations.

18:16 England: Reaction to the Civil War 1640-1660 2 s.h.
Political and military changes in the modern world, with an emphasis on the role of diplomacy and the impact on international relations.

18:16 England: Revolution 1688-1714 2 s.h.
Political and military changes in the modern world, with an emphasis on the role of diplomacy and the impact on international relations.

18:16 History of the United States 1795-1950 4 s.h.
The development of United States history from 1795 to 1950, with an emphasis on the role of diplomacy and the impact on international relations.

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home economics education, and violence, home economics contributes to the physical, psychological, social, and aesthetic development of people.

Home economics as a career offers a wide range of opportunities: teaching, statistics, merchandising, interior and textile design, product development and quality control in textile and food industries, consumer relations, family life education and services, food service management, and service with community or government agencies.

**Undergraduate Requirements**

The undergraduate program prepares students for immediate employment as professional home economists, and also for advanced study.

Concentration in design and housing, family development, food and nutrition, home economics education, or textiles and clothing makes it possible for undergraduate majors to develop specialization. The home economics core provides a central body of knowledge and a realistic understanding of relationships among the various areas of specialization within home economics. Joint programs may be arranged with other fields 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 will supplement their major prerequisites for home economics courses.

All students majoring in home economics complete the core:

- 11-9 Human Development and the Family 3 s.h.
- 17:41 Food, Nutrition and Man 3 s.h.
- 17:50 Design for the Home 3 s.h.
- 17:80 Textiles for Consumers 1 s.h.
- 17:11 Management of Family Resources 3 s.h.
- 17:180 Seminar: Home Economics 2 s.h.

### The Bachelor of Arts

**Design and Housing Students**

Students concentrating in design and housing are prepared for careers in residential and commercial interior design, space planning, design consulting, merchandising, fashion design and related fields. The requirements for this concentration:

- 17:53 Presentation Graphics 3 s.h.
- 17:54 Interior Design: Principles and Practices I 3 s.h.
- 17:135 Survey of Historic Interiors 4 s.h.
- 17:160 Textile Design: Printed and Dyed Goods 3 s.h.
- 17:165 Housing: Planning and Structural Aspects 3 s.h.
- 11:97 Form and Theory in the Visual Arts 4 s.h.
- 11:36 Art in the Western World 4 s.h.
- 18:1 Elements of Art 2-3 s.h.
- 18:2 Elements of Art 2-3 s.h.

or an approved two-dimensional studio art course

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

or an approved three-dimensional studio art course

Two of the following, one of which must be a studio course:

- 17:155 Interior Design: Principles and Practices II 3 s.h.
- 17:154 Interior Design: Principles and Practices III 3 s.h.
- 17:158 Survey of Modern Interiors 2 s.h.
- 17:157 Historic Restoration Methodology 3 s.h.
- 17:162 Textile Design: Basic Weaving 3 s.h.
- 17:163 Textile Design: Intermediate Weaving 3 s.h.
- 17:164 Textile Design: Form and Fibers 3 s.h.
- 17:166 Housing: Social and Psychological Aspects 3 s.h.

One of the following:

- 6B:31 Introduction to Marketing 2 s.h.
- 6E:1 Principles of Economics 4 s.h.
- 6E:2 Principles of Economics 4 s.h.

Electives from home economics, business administration, urban and regional planning, art history, studio art, social sciences, and computer science are not required.

### Family Development

This program prepares students for careers with agencies and services concerned with the family and its functioning, for family life education, and for the extension service. Required:

- 17:10 Growth and Development of the Young Child 3 s.h.
- 17:13 Marriage and Family Interaction 3 s.h.
- 17:14 Parent-Child Relationships in the Exceptional Family 3 s.h.
- 17:16 Divorced Studies in Family Development 3 s.h.
- 17:12 Materials and Methods in Family Life Education 3 s.h.
- 91:1 Elementary Psychology 4 s.h.
- 34:1 Introduction to Sociology: Principles 4 s.h.

One of the following:

- 34:1A The Family in Various Societies 3 s.h.
- 34:1B The Americas Family 3 s.h.
- 34:1C Countries, Marriage and Alternative Life Styles 3 s.h.

Electives from home economics, education, social work, psychology, and sociology are recommended.

### Food and Nutrition

This program prepares students for careers in dietetics, in the food industry, and for service with community and government agencies. A concentration in food and nutrition requires:

- 17:31 Food Study 2 s.h.
- 17:32 Food Study Laboratory 2 s.h.
- 17:33 Meal Management 3 s.h.
- 17:34 Experimental Food I 3 s.h.
- 17:35 Experimental Food II 3 s.h.
- 17:46 Nutrition Laboratory 2 s.h.
- 17:47 Nutrition 3 s.h.
- 4:15-16 Nutrition II 6 s.h.
- 4:15 Elementary Chemistry Laboratory I 1 s.h.
- 4:13 Organic Chemistry I 3 s.h.
- 4:14 Intermediate Chemistry Laboratory I 1 s.h.
- 5:15 General Microbiology 4 s.h.
- 72:13 Introduction to Human Physiology 4 s.h.
- 99:120 The Chemistry of Biological Materials 3 s.h.
- 99:130 Metabolism 3 s.h.

Electives should be selected from home economics and the natural sciences.

A concentration in nutrition with emphasis on pediatrics requires:

- 17:131 Food Study 2 s.h.
- 17:32 Food Study Laboratory 2 s.h.
17:123 Meal Management 3 a.h.
17:124 Experimental Food I 3 a.h.
17:125-127 Institution Management I-III 6 a.h.
17:142 Nutrition 3 a.h.
17:146 Nutrition Laboratory 2 a.h.
17:147 Diet Therapy 3 a.h.
4:13-14 Principles of Chemistry I-II 6 a.h.
4:16 Elementary Chemistry Laboratory I 2 a.h.
4:191 Organic Chemistry I 3 a.h.
9:192 The Chemistry of Biological Materials 3 a.h.
9:193 Metabolism 3 a.h.
9:194 Principles of Economics 4 a.h.
9:195 Personal Management 3 a.h.
7:35 Educational Psychology and Measurement 3 a.h.
24:1-25:1 Educational Psychology 3-4 a.h.
34:1 Introduction to Sociology: Principles or 4 a.h.
or 31:1 Elementary Psychology 4 a.h.
61:157 General Microbiology 4 a.h.
72:12 Introduction to Human Physiology 4 a.h.
113:3 Introduction to the Study of Culture and Society 4 a.h.

Electives should be selected according to the student's professional objective from the natural sciences, business administration, psychology, computer science, wildlife, education and home economics.

This program follows minimum academic requirements of the American Dietetic Association Plan IV. All students applying for internships and travel scholarships must have completed at least the first semester of the junior year.

Home Economics Education

This program leads to certification and vocational support in home economics. Graduates are qualified to teach home economics in vocational and nonvocational secondary schools, to work in home economics extension and other agencies, and to teach in nonschool settings.

Required:
17:31 Introductory Food Study or 2 a.h.
17:31-32 Food Study, Food Study Laboratory 4 a.h.
17:112 Personal Financial Management 3 a.h.
17:113 Marriage and Family Interrelation 3 a.h.
17:114 Parent-Child Relationships 3 a.h.
17:21 Curriculum: Home Economics 3 a.h.
17:28 Evaluation: Home Economics 2 a.h.
17:130 Meal Management 2 a.h.
17:165 Housing: Planning and Structural Aspects 3 a.h.
17:166 Housing: Social and Psychological Aspects 3 a.h.
17:75 Apparel, Fashion and Selection 3 a.h.
or 17:70 Custom and Contemporary Tailoring 3 a.h.
or 17:71 Fitting Problems and Flat Pattern Design 3 a.h.
or 18:1 Elements of Art 2-3 a.h.
or 18:2 Elements of Art 2-3 a.h.
or 46:1 Principles of Economics 4 a.h.
or 46:2 Principles of Economics 4 a.h.
or 31:1 Elementary Psychology 4 a.h.
34:1 Introduction to Sociology: Principles 4 a.h.

In addition, students must complete the coursework generally required for teacher certification. The methodology course required in home economics education is 17:28 Evaluation: Home Economics (3 a.h.). In addition to the general requirements to be eligible for student teaching (75:191 or 75:192), the student in home economics education must have completed 28 semester hours of home economics courses with a 2.5 grade-point average in that work, and must have received no grade less than "C" in the home economics courses required for home economics endorsement and vocational approval.

For the general requirements to be eligible for student teaching and for certification, the "College of Education" and "Secondary Education." Students beginning their programs in 1978 and afterwards will be required to have 406 hours of paid employment in a home economics-related occupation (e.g., food service, day care center, retailing) for certification. This work experience can be through 17:200 Cooperative Education Training Assignment or through Verification of Work Experience. Electives should be selected from education, journalism, psychology, sociology and communication.

Textiles and Clothing

This program prepares students for careers in merchandising. Concentration in fashion merchandising requires:
17:70 Introductory Clothing Construction 3 a.h.
17:72 Apparel Fashion and Selection 3 a.h.
17:81 Science of Textiles 3 a.h.
17:70 Custom and Contemporary Tailoring 3 a.h.
17:71 Fitting Problems and Flat Pattern Design 3 a.h.
17:72 Fashion Merchandising 3 a.h.
17:74 Textile Finishing, Dyeing, and Dewatering 3 a.h.
17:82 Tailoring and Apparel Economics 3 a.h.
46:0 General Chemistry I 5 a.h.
46:0 General Chemistry Laboratory I 2 a.h.
or 4-13-14 Principles of Chemistry I-III 5 a.h.
4:16 Elementary Chemistry Laboratory I 2 a.h.
56:1 Principles of Economics 4 a.h.
68:01 Introduction to Marketing 3 a.h.
68:01 Administrative Management 3 a.h.
68:135 Consumer Behavior 3 a.h.
68:137 Advertising Theory and Planning 3 a.h.
11:27 Form and Theory in the Visual Arts 4 a.h.
4 a.c.
A course in computer science or a course in communications.
Courses in business administration, computer science, journalism, communication, and home economics are recommended as electives.

Concentration in textiles technology requires:
17:70 Introductory Clothing Construction 3 a.h.
17:72 Apparel Fashion and Selection 3 a.h.
17:81 Science of Textiles 3 a.h.
17/181 Textile Finishing and Dyeing and Detergency 3 s.h.
17/182 Textile Analysis 3 s.h.
17/183 Textile and Apparel Economics 3 s.h.
4/5-6 General Chemistry I-II 6 s.h.
and 4/6 General Chemistry Laboratory 2 s.h.
17/18 Textile and Apparel Analysis 3 s.h.
17/182 Textile and Apparel Economics 3 s.h.
4/5-6 General Chemistry I-II 6 s.h.
and 4/6 General Chemistry Laboratory 2 s.h.
4/13-14 Principles of Chemistry I-II 8 s.h.
4/16 Elementary Chemistry Laboratory I 2 s.h.
92/1 Principles of Economics 4 s.h.
11/37 Form and Theory in the Visual Arts 4 s.h.
22M/102 Mathematical Techniques I 3 s.h.
22E/102 Introduction to Statistical Methods 3 s.h.
Electives from computer science, statistics, engineering, psychology, chemistry, economics, and home economics are recommended.

The Bachelor of Science

The B.S. programs are recommended for students who want greater depth or breadth in the natural sciences, and for those interested in research positions in colleges and universities or in industrial, governmental or medical research laboratories.

Food and Nutrition

In addition to the requirements for the B.A. degree emphasizing food or nutrition, the B.S. degree requires the following courses:

22M/0-3 Mathematical Techniques I 5 s.h.
22M/20 Elementary Functions 3 s.h.
22M/0-3 Calculus I 4 s.h.
29/11-12 College Physics 5 s.h.
4/130 Physical Chemistry for the Life Sciences 3 s.h.
or 95/140 Experimental Biochemistry 4 s.h.

Home Economics Education

Graduates can enter the careers described for the B.A. degree. The B.S. program enables students to obtain greater depth and breadth in the natural and social sciences. In addition to the courses and work experience listed for the B.A. degree, the B.S. requires:

4-7/3 General Chemistry I-II 8 s.h.
4-9 General Chemistry Laboratory 2 s.h.
A course in statistics 2 s.h.
Two courses from the natural sciences major course numbered 200 or above in anthropology, economics, psychology or sociology 6 s.h.

Textile Science

This program prepares students for positions in the textile industry, and for graduate studies. In addition to courses listed for the B.A. degree in textile technology, these are required for the B.S. degree:

4/101 Instrumental Quantitative Analysis 4 s.h.
4/121-122 Organic Chemistry I-II 6 s.h.
22M/29 Calculus II 4 s.h.
22M/09 Calculus II or
22M/3 Mathematical Techniques II 3 s.h.
and 22M/20 Elementary Functions 3 s.h.
22M/29 Co-operation Laboratory for Calculus and Linear Algebra 3 s.h.
or 29/11-12 College Physics 6 s.h.
or 29/17-18 Introductory Physics I-II 8 s.h.
Electives should be selected from chemistry, engineering, computer science, statistics, microbiology, and home economics.

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 program. Students who are concentrating in design and housing, home economics education, or textiles and clothing, and who meet the Department's requirements, may apply to the Department's Cooperative Education Committee for participation in this program.

The Honors Program

To be eligible for honors, the student must have junior standing, 30 semester hours in residence at the University, an overall cumulative grade-point average of 3.0 or above, a grade-point average of 3.25 or higher in home economics courses, and at least 16 semester hours completed in home economics. Honors work consists of 17/191 Honors Seminar: Home Economics and 17/292 Honors Problems: Home Economics in which students complete work or a research project. A written report or Honors Thesis and an oral examination are required.

The Graduate Program

The demand for well-qualified professional home economists far exceeds the number of graduates with advanced degrees. The master's degree graduates qualify for positions in colleges, secondary schools, business, industry, and government.

The graduate program enables students to obtain depth through specialization in one of five subject areas: design and housing, family development, food and nutrition, home economics education, and textiles and clothing.

The Department offers both daytime and evening programs. The thirty-two credit program is recommended for students preparing for teaching and research in colleges and universities, for positions in industry, and for continued study beyond the master's degree. The thirty-two credit program permits more intensive experience in research procedures or the opportunity for extensive creative work.

The thirty-two credit program is offered in the distribution, or in cooperation with related departments or colleges.

To be admitted unconditionally, the student must have an overall grade-point average of 2.8 with 3.0 in the area which is to be the major interest in graduate study.

Master's Programs

For either the Master of Arts or Master of Science degree, students must complete a minimum of 30 semester hours of graduate work with a thesis, or 38 semester hours of graduate work without a thesis. In addition to adequate prerequisites for courses selected, Approximately one-third of all student's coursework is devoted to courses other than Home Economics. The designation of the degree, M.A. or M.S., depends on the area of major work.

At least three of the M.A. and M.S. programs are required to complete 17/290 Seminar: Home Economics Research. Those in the thesis program complete 17/291 Thesis.
Design and Housing

Graduate study in design and housing may be planned as a specialized program in interior design or textile design, or as a more general program including a wider variety of courses. Applicants to this program must present a portfolio prior to admission. A variety of career opportunities is available to the M.A. student in design and housing. These include college teaching, interior design, textile design, historical preservation and restoration, and positions in business and industry. Required (appending as previous coursework):

17:156 Survey of Modern Interiors 2 s.h.
17:202 Seminar: Design and Housing 2 s.h.
17:260 Research: Problems in Design and Housing 2-4 s.h.
17:290 Seminar: Home Economics Research 2 s.h.
One course in art history 3 s.h.
One course in studio art 3 s.h.

Courses for interior design specialization:

17:155 Interior Design: Principles and Practices I 3 s.h.
17:154 Interior Design: Principles and Practices II 3 s.h.
17:155 Survey of Historic Interiors 4 s.h.
One course in textiles design 3 s.h.
One course in housing 3 s.h.

Courses for textile design specialization:

17:160 Textile Design: Painting and Print Design 3 s.h.
17:162 Textile Design: Basic Weaving 3 s.h.
17:164 Textile Design: Forms and Fibers 3 s.h.
17:216 Studio Workshop: Fiber 4 s.h.
One other course in textile design 3 s.h.

Family Development

The graduate student gains both psychological and social scientific perspectives in understanding the family. Graduate work with agencies concerned with the family or prepared for college and university teaching. Required:

17:108 Sexuality and the Family 3 s.h.
17:122 Seminar: Family Dynamics 3 s.h.
17:213 Thorney in Family Development 3 s.h.
17:218 Research Problems in Family Studies 3 s.h.

17:280 Seminar: Home Economics Research 2 s.h.
7P:100 Child Development 3 s.h.
A course in statistics 3 s.h.

Food and Nutrition

Graduate work may emphasize foods, nutrition, or nutrition education. Graduates qualify for positions in educational institutions, business, industry, government, and the health field. Applicants need background courses in foods, nutrition, general and organic chemistry, mathematics, physics, and microbiology.

Required for specialization in food (M.S.):

17:134-135 Experimental Food I-II 6 s.h.
17:278 Seminar: Food 2 s.h.
17:239 Research: Problems in Food and Nutrition 2-4 s.h.
17:241 Seminar: Nutrition 2 s.h.
17:280 Seminar: Home Economics Research 2 s.h.
99:102 The Chemistry of Biological Materials 3 s.h.
99:130 Metabolism 3 s.h.
31:157 General Microbiology 4 s.h.

Required for specialization in nutrition (M.A.):

17:134 Experimental Food I 3 s.h.
17:145 Advanced Nutrition 3 s.h.
17:146 Nutrition Laboratory 3 s.h.
17:239 Research: Problems in Food and Nutrition 2-4 s.h.
17:241 Seminar: Nutrition 2 s.h.
17:280 Seminar: Home Economics Research 2 s.h.
99:120 The Chemistry of Biological Materials 3 s.h.
99:130 Metabolism 3 s.h.

225:101 Biostatistics 3 s.h.
or
7P:143 Introduction to Statistical Methods 3 s.h.

Courses for Nutrition Education Specialization (M.A.):

17:124 Nutrition Work with Children or substitute, depending on professional goal 3 s.h.
17:145 Advanced Nutrition 3 s.h.
17:146 Nutrition Laboratory 3 s.h.
17:239 Research: Problems in Food and Nutrition 2-4 s.h.
17:241 Seminar: Nutrition 2 s.h.
17:280 Seminar: Home Economics Research 2 s.h.

Textiles and Clothing

This program prepares students for careers in merchandising, textile research, teaching, or operation service and communication. Required:

17:279 Research: Problems in Clothing 3 s.h.
or
17:289 Research: Problems in Textiles 3 s.h.
17:290 Seminar: Home Economics Research 2 s.h.
7P:143 Introduction to Statistical Methods 3 s.h.

Additional courses in textiles and clothing are required based upon the student's educational background and professional needs.

Master of Arts in Teaching

The M.A.T. program is designed for students with an undergraduate degree in home economics who have had few or no professional education courses. The program is comprehensive and requires written and oral comprehensive examinations.
17032 Instrumental Analysis of Textile Polishes 4 s.h.
Compositional analysis of fibers and fabric properties by the use of methods for scientific evaluation of raw materials.
17286 Textiles 4 s.h.
Readings, reports, and discussions of current literature in textiles.

Hospital and Health Administration
See "College of Medicine."

Italian
See "French and Italian."

Jounalism
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Faculty professors: John Beick, Heman Hart, Kenneth Stach, Allan Tidwell
Graduate assistants: Leslie O. Beick

Undergraduate Programs
Our main objectives in the undergraduate program is to prepare students for professional work in mass communication. Our emphasis is on print media, but there are many opportunities for students in other areas of mass communication as well.

Since journalism must know not only how to communicate but what to communicate, our faculty believes students should have a liberal arts background in addition to their professional preparation. Thus, we require students to take a broad base of their coursework outside the School. Students also must complete a second major—that is, in addition to their journalism major—or the equivalent of a second major. This helps students develop a subject area of professional competence.

At Iowa we offer undergraduate students a choice of two sequences—News-Editorial (accredited by the American Journalism Council on Education for Journalism) or Text-Communication. Both require core courses, but they also permit much freedom in course selection. To begin with, students in both sequences must fulfill these basic School requirements:

19101 Culture and Historical Foundations of Communication 3 s.h.
19132 Social Scientific Foundations of Communication 3 s.h.
19110 Introduction to Journalism Writing 2 s.h.
19130 Ethical and Legal Issues in Communication 3 s.h.
Total 11 s.h.

Both the Bachelor of Arts and the Bachelor of Science degrees require at least 23 semester hours of coursework in journalism. To satisfy the second-major requirement, the B.A. student may either complete a second major in another discipline or, with the approval of the School of Journalism, complete an additional 18 s.h. of coursework in another discipline. Additional requirements for the B.S. degree are 32 hours. These requirements are in addition to the requirements for the B.S. degree, and the student must fulfill the University's general education requirements.

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student must design a plan of study and present it for advisor approval.

**News-Editorial Sequence**

This sequence is concerned with the gathering, organizing, and effective writing of news and other information from printed, human and environmental sources, and will provide the processing, packaging and display of news stories, articles and illustrations, for printed and broadcast media. This sequence also provides for the development of the various technical skills required for work in the student's choice of media. Journalism coursework required for this emphasis:

- 19:112 News Reporting and Writing 4 s.h.
- 19:114 News Prosewriting 3 s.h.
- 19:116 Advanced Reporting 2 s.h.

Maximum journalism credit allowed toward graduation: 36 s.h.

**Mass Communication Sequence**

This is an alternative to the News-Editorial Sequence, offering several other approaches to obtaining a major in the School of Journalism.

One approach is laboratory oriented. Stressing applied theory and practice, this track affords students a variety of opportunities to develop and refine their skills in such media as writing, graphic design and layout, still and motion picture photography, and audio and video production. Career possibilities include broadcasting/video, public relations and organizational communication as well as others.

Another approach in this sequence is primarily theoretical. It emphasizes the acquisition of knowledge about communication in lecture and seminar settings in which the basic perspective is humanistic and theoretical. This track concentrates on the study of communication as a way of apprehending society and human interaction with the focus on historical, philosophical and scientific modes of understanding. Students in this track often pursue graduate studies in other or related areas.

It is possible to combine both approaches into one program.

*Special requirements for the two tracks of the Mass Communication Sequence are:*

**Laboratory Track**

- 19:181 Mass Communication Lab and 21st Century Media 3 s.h.
- 19:211 Advanced Writing 3 s.h.
- 19:213 Reporting 3 s.h.
- 19:214 Advanced Reporting 3 s.h.
- 19:216 News Writing 3 s.h.
- 19:217 News Reporting and Writing 4 s.h.
- 19:218 News Prosewriting 3 s.h.
- 19:220 Professor's Seminar 3 s.h.
- 19:221 Professor's Research 3 s.h.
- 19:222 Professor's Research 3 s.h.

*Mass Communication Sequence* (Fall semester; credit hours in Master's Program)

For students with professional experience in communication and journalism, the M.A. in professional journalism requires:

- 19:200 Master's Seminar 3 s.h.
- 19:201 Master's Research 3 s.h.

*Mass Communication Sequence* (Spring semester; credit hours in Master's Program)

For students with professional experience in communication and journalism, the M.A. in professional journalism requires:

- 19:200 Master's Seminar 3 s.h.
- 19:201 Master's Research 3 s.h.

**Graduate Programs**

**Master of Arts**

The Master of Arts degree program in journalism combines professional training in the media with consideration of the effects, responsibilities and significance of the media. It prepares students for a wide variety of positions in communication, and for study in the doctoral level.

The degree is offered with or without thesis, with either a professional journalism or a communication and mass communication emphasis, both requiring a minimum of 30 semester hours of graduate-level coursework.

**Professional Journalism Emphasis**

The program is designed for individuals who want to improve their technical skills and broaden their understanding of the role and function of the profession in contemporary society.

For students with no professional experience and an undergraduate degree in a field other than journalism, the M.A. in professional journalism requires:

- 19:112 News Reporting and Writing 4 s.h.
- 19:220 Professor's Seminar 3 s.h.
- 19:240 News Communication I: Principles and Practice 4 s.h.
- 19:241 News Communication II 3 s.h.
- 19:251 Master's Research 3 s.h.

**Doctorate in Mass Communication**

The doctoral program in mass communication is an interdisciplinary program whose central objective is to develop scholars who will make significant contributions to teaching and research in communication. The grounding provided is applicable in a number of fields, including university teaching, news communication, international communication and various others requiring ability to derive effective communication strategies. The program is designed around a core of graduate work in communication, and encourages the student to work with his or her advisor and committee in the development of an appropriate, individualized plan of study.

**Iowa Center for Communication Study**

The Center encourages and facilitates inquiry into communication problems by faculty members and by graduate and undergraduate students, via diverse approaches—laboratory, systems design, psychological, technical, sociological, historical, philosophical, behavioral, literary, Center services include consultation, training, publication in appropriate outlets, excellence in obtaining financial support for projects and assistance in computer use and data analysis. The Center publishes the semiannual Journal of Communication Inquiry, which is student-edited and available to explore different approaches to communication theory and research.
Iowa Lakes Laboratory

Dean: Richard V. Boring
Faculty: professors Richard C. Berendt (Zoology), The University of Iowa; Robert W. Crider (Biology), Iowa State University; John S. Dolan (Zoology), University of Northern Iowa; John H. Kemas (Zoology), University of Wyoming; William F. Matt (Zoology), Florida State University; K. H. "Tuffy" Skewes (Zoology), Iowa State University; and Robert H. Leasure (Zoology), Iowa State University.

The Iowa Lakes Laboratory is a biological field station comprising approximately 100 acres of grassland and gallery forest along the west shore of Lake Okoboji in northwest Iowa. The laboratory was established in 1909 under the leadership of Thomas H. Macbride, whose endowment as a University of Iowa research fellow in the biological sciences (1878-91) was recognized in his elevation to the University presidency (1894-1898). The Lab was one of the first of its kind for the conservation and study of the rich flora and fauna of the northern Iowa lakes 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.

Teaching Program

The Iowa Lakes Laboratory offers coursework in two five-week terms during the summer session.

Enrollment is limited to one course, for five hours of credit per term.

The Laboratory gives special students—advanced undergraduates and graduate—the opportunity to meet and develop the conditions of plant and animal life in a natural setting. Study involves supplements, and does not replace, regular course-work given normally by accredited colleges.

Students working for advanced degrees will find unusual opportunities for development of thesis projects.

Teaching and research facilities include seven laboratories and a lecture hall. Living accommodations include cottages, dormitories, and a large mess hall.

Financial Aid

The University of Iowa has established several Thomas H. Macbride Scholarships in Natural Science for undergraduate and graduate students attending the Lakes Laboratory. The Scholarships cover tuition. Applications close April 1.

Registration

Current or former students of the three cooperating universities should ask their registrars for particulars. Students from other institutions must apply for admission to one of the three cooperating universities; each receives a provisional admission or utility for students who wish to register for summer work only.

Registration is advisable. All applications should be completed before May 1.

Courses

Representative of interest required for all courses. Enrollment limited to students in the three cooperating field stations, for which the term is in session.

Courses may vary from year to year (especially Lakes Laboratory Student) in the following:

1. L 101 Field Botany
2. L 102 Field Zoology
3. L 103 Introduction to soil and water relationships
4. L 104 Soil Microbiology
5. L 105 Plant Taxonomy
6. L 106 Basic principles of classification and nomenclature
7. L 107 Ecology
8. L 108 Aquatic Ecology
9. L 109 Introduction to animal physiology
10. L 110 General Microbiology

11. L 111 Independent Study

L 151 Field Botany
L 152 Field Zoology
L 153 Field Ecology of Bryophytes and Lichens
Letters

Committee chair: Alan Hale

Family, profession, personal outlook (England and Commonwealth Literature); H. Barry (East Asian Literature and Linguistics)

Assistant professor: Dudley Andrew (England and Film), Colin P. Duggan (German, Classical Archaeology), Alastair Donald (English and Comparative Literature), Alan F. English (English and Comparative Literature), Paul F. Fornace (Drama), Rick A. Hamilton (History, Penn State, Russian), Robert P. Watson (English)

Assistant professor: James M. A. Lusby (French and Italian)

Professor: Frank Marini (Italian and Comparative Literature), Eric S. Newbark (Italian and Comparative Literature), James P. Plater (Drama), William R. Price (Italian and Comparative Literature)

Dean, Office of B.A.

The curriculum program in letters takes as its subject the field of literature, without proscribed limits of a historical, national, or lingual kind. By its international orientation, the program provides an alternative to courses of study in a single national language and literature. The program is interdisciplinary, and a student typically pursues courses offered in at least three different departments in completing the B.A. degree.

The study of literature may be lightly focused on questions of what literature is and for itself, of what it is for men to read stories, recite poems, or write what will be read by others from the printed page. It is equally possible for students of literature to raise questions of broader kinds. To investigate the relation of literary production and effects to other kinds of thought and action in culture, society, and history. Authors and relatives, aside from their attention to literary works or many kinds in their native languages, in foreign languages and in translations. Letters, speaking, gesturing, reading—our different ways of communication have much in common. To undertake a program in the School of Letters offers a way to discover the variety of literatures both in one's own private life and in the lives of people from other languages and times.

The program is not exclusively international.

For many students, the major provides a general course of study in the humanities with considerable freedom to create one's own concentration. Students looking toward to teaching world literature in translation or general literary subjects and those intending to pursue graduate study in comparative or national literatures may choose the B.A. in letters. Future professionals in such fields as medicine and law may find the major a satisfying concentration toward the B.A.

The program of study for the B.A. in letters encourages the undergraduate student to work closely with one or more advisors in developing an individual course of study. A typical student might study classical and modern theater, and cinema and fiction from several countries; of his or her choice include work in film or practice in writing on a hand press. The major in literature requires that a student do work in three different national literatures or literary traditions, with some experience of historical diversity. Students doing all their reading in English and translation must complete 96 hours of work at least 36 hours of coursework in literary subjects; students who complete at least six hours of study in a foreign literature in the original language are required to take a total of at least 30 hours in literature for the B.A. Appropriate courses in linguistics, creative writing, translation and interdisciplinary studies concerning on literary majors may be taken toward completion of the major.

There are no requirements for admission to the major. Interested students should see the chair of one of the departments in the major.

Courses

International or Comparative Themes and Problems

Introduction to African Literature 3 s.h.

Introduction to Asian Literature 3 s.h.

Introduction to Latin American Literature 3 s.h.

Introduction to Middle Eastern Literature 3 s.h.

Introduction to South American Literature 3 s.h.

International Perspectives on Literature 3 s.h.
National or Ethnic Traditions
118:119 Asian Humanities
Same as 211:118. 3 s.h.
118:209 Asian Humanities
Same as 211:119. 4 s.h.
118:204 The Third Reich and Literature
Same as 211:120. 3 s.h.
118:156 Yiddish Literature in Transition
Same as 211:130. 3 s.h.
118:155 Medieval and Renaissance Drama
Same as 211:131. 3 s.h.
118:215 Irish English in Literature
Same as 211:136. 3 s.h.
118:132 Introduction to African Language and Culture
Same as 211:140. 3 s.h.
118:115 African Languages and Cultures II
Same as 211:142. 3 s.h.
118:110 Latin American Literature
Same as 411:12. 3 s.h.
118:120 Latin American Novel
Same as 411:10. 3 s.h.
118:122 Women in German Literature
Same as 211:125. 3 s.h.
118:127 Chinese Literature
Same as 211:115. 3 s.h.
118:116 Art and the Novel
Same as 211:124. 3 s.h.
118:128 Art and the World
Same as 211:132. 3 s.h.
118:114 Language and the French-speaking World
Same as 411:12. 3 s.h.
118:113 Classical Mythology
Same as 411:12. 2-3 s.h.
118:120 The European Novel: 1500-1800
Same as 211:119. 3 s.h.
118:129 American Literature of Fantasy
Same as 211:130. 3 s.h.
118:206 The Liberal's Guide to European Literature
Same as 411:15. 2 s.h.
118:128 The European novel 1700-1800
Same as 211:133. 3 s.h.
118:130 The Liberal's Guide to 19th-Century Fiction
Same as 411:15. 2 s.h.
118:129 American Literature of the 18th Century
Same as 211:132. 3 s.h.
118:132 Literature and the Film
Same as 411:15. 3-4 s.h.
enroll in the introductory library science and children's literature courses (100-level).

The Master of Arts Program

Professional preparation for careers in all types of libraries is provided by the School's Master of Arts Program, accredited by the American Library Association.

The School also offers a nondegree graduate program for certification in school librarianship.

Its graduate hold positions, in approximately equal numbers, in public, school and academic libraries, serving in such roles as administrators, bibliographers, catalogers, reference specialists or children's librarians.

The Master of Arts degree in library 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. The program consists of a small core of required courses in all areas of librarianship, additional required courses in a type of library and in bibliography, and electives. The plan of study should be varied to developing special competencies in a particular field of librarianship.

Basic Plan of Study

Core courses (required of all M.A. candidates) 9 s.h.
21:151 Reference I
21:152 Cataloging and Classification
21:153 Selection of Library Materials
Type-of-library course (one required) 3 s.h.
21:231 The Public Library
21:232 The College and University Library
21:233 School Media Center Administration
Bibliography course (one required) 3 s.h.
21:241 Bibliography of the Humanities
21:242 Bibliography of the Social Sciences
21:243 Bibliography of the Sciences
Electives 18 s.h.

Students are expected to take their elective hours in library science courses. However, when a student has met extensive undergraduate coursework in library science, when career objectives so indicate, and with the advisor's consent, the student may take elective hours in other University departments, especially in closely related areas such as computer science, educational media, urban and regional planning, municipal government, etc.

With the director's approval, a student with a strong background in library science may elect to write a thesis, for which six semester hours of credit may be earned. However, most students are advised to undertake the nonthesis program.

The program normally requires two semesters and one summer of resident study, or, in the case of students attending summers only, a minimum of four summer sessions.

Public Library Work

A major concern of public librarians is to design innovative service programs to reach those segments of the population now unserved, as well as to provide a full range of services to all members of the community. Management skills are often needed in these positions.

Required courses

Core courses

Bibliography course 21:251 The Public Library
Suggested electives

21:213 Library Services to Adults 21:222 Multi-Media Concepts in Libraries
21:246 Introduction to Information Science 21:248 Research Methods
21:251 Advanced Reference 21:252 Advanced Cataloging

Additional bibliography courses


School Library Work

The school media center makes a wide range of print and audiovisual materials accessible to students and teachers. The work of the media specialist includes such activities as providing instruction to students in the use of media, consulting with teachers about the use of media in the teaching program, producing new materials, offering reading guidance and providing reference service.

State certification is required for a career as a librarian in elementary and secondary schools.

Required courses

Core courses

Bibliography course 21:222 Multi-Media Concepts in Libraries
Elective courses

21:223 School Media Center Administration
Suggested electives

21:123 Children's Literature 21:124 History of Children's Books
21:126 Literature and Storytelling for Children 21:192 Literature for Adolescents
21:223 Multi-Media Concepts in Libraries 21:234 Library Services to Children and Young Adults
21:246 Research Methods 21:251 Advanced Reference
75:281 Junior High School and Middle School Curriculum
75:291 Secondary School Curriculum

Additional courses in educational media

College and University Library Work

The academic library, whether in a community college or a university, provides service to students, faculty and staff relating to their information, education and research needs. Management or supervisory responsibility is often required. Special competencies may be called for, such as subject or language specialty or an activity specialty (classification and indexing, information systems, etc.).

Required courses

Core courses

Bibliography course 21:233 The College and University Library
Suggested electives
21:246 Introduction to Information Science
21:247 Research Methods
21:251 Advanced Reference
21:252 Advanced Cataloging
21:255 Government Publications
21:263 Problems in Library Management
21:284 Medical Librarianship and Bibliography
21:285 Law Librarianship, Bibliography and Research Techniques
21:286 Practicum in Libraries
Additional bibliography courses

Work in Special Libraries
Special librarians function in such settings as government agencies, industrial firms, hospitals, museums and publishing companies. In addition to management skills, the special librarian often needs a subject specialty.

Required courses
Core courses
21:239 Sociology of Libraries
Type-of-library course
21:246 Introduction to Information Science
21:247 Research Methods
Advanced courses
21:251 Advanced Reference
21:252 Advanced Cataloging
21:255 Government Publications
21:263 Problems in Library Management
21:284 Medical Librarianship and Bibliography
21:285 Law Librarianship, Bibliography and Research Techniques
21:286 Practicum in Libraries

Certification in School Librarianship
Students who desire to become school librarians may fulfill certification requirements within the M.A. program, or they may pursue a non-degree certification program. The certification program, a 20-semester-hour sequence, accepts both undergraduate and graduate coursework, and does not require a foreign language for admission.

The required courses and suggested electives are the same as those listed above under School Library Work, except that a bibliography course is not required.

The student must hold an approved teaching certificate, either at the elementary or the secondary level. Completion of the certification program provides authorization to serve as librarian K-12.

Joint Program in Business Administration and Library Science
Today's professional librarian faces ever-increasing demands for knowledge and expertise in the functional areas of administration and management. In addition to understanding the principles of library science, the librarian, whether in an academic or public setting, is discovering the importance of understanding and applying the principles for effective management of complex organizations. In order to offer students an opportunity to gain a solid understanding of the problem-solving techniques of each area, the College of Business Administration and the School of Library Science have developed a joint program which leads to two degrees—the Master of Business Administration (M.B.A.) and the Master of Arts (M.A.) in Library Science.

To enroll in the joint program the student must apply to and be accepted by both the Graduate School and the School of Library Science. The joint program enables the student to apply six semester hours of business electives toward the M.B.A. in Library Science and nine hours of library courses toward the M.A. A minimum of 60 hours must be completed in order to receive the two degrees. Students not having previous coursework in business administration may be required to complete up to 72 hours in the joint program.

Facilities and Resources
Quarters for the School of Library Science in the south wing of the University's Main Library provide well-planned facilities for the varied instructional and research activities of the School. A media lab provides equipment and space for slide-type production, videotaping, computer programming, super-8 filmmaking, filmstrip

production, demounting, 16mm film previewing, and simple video editing.

Computer terminals include an on-line lab with a job-control terminal and a printing terminal, providing access to the University's CYBER system, national bibliographic data bases, and OCLC (a national on-line library network).

A teletype links the School with a state network of academic and public libraries, by which students provide back-up reference service to libraries throughout the state.

A departmental library contains approximately 10,000 volumes and 250 periodical titles.

All of the resources of the University Libraries are available to students and faculty of the School. The system contains more than two million volumes in the main Library and 12 deernetional branch libraries.

In addition, students have access to a variety of libraries for clinical and laboratory purposes: the State Historical Society Library in Iowa City; the Iowa City and Cedar Rapids public and school libraries; the Cira, Cornell and Grinnell college libraries; and, by arrangement, the Herbert Hoover Presidential Library in West Branch.

Placement
Prospective students are advised that since the job market for entry-level librarians has worsened, graduates with strong personal and academic qualifications, flexibility, and geographic mobility will be most successful in finding positions. The School provides placement assistance to its graduates seeking employment.

Financial Assistance
The School of Library Science annually awards several partial-fellowship scholarships, as well as quarter-time graduate assistantships. Prospective students are urged to apply for these awards before March 1. Students interested in part-time employment should contact the libraries of the Iowa City area.

Admission Requirements and Procedures
Scholaric requirements for admission are the M.A. program includes:
Linguistics

Department chairman: Howard S. Marley
Faculty members: Amanda Audindor, John C. Kugelguth, Robert S. Marley
Assistant professor: Comedy A. Hester, Gregory K. Inverness, Karen A. Crroate, Catherine G. Ringer

Linguistics has evolved from a humanities discipline into one of the social/behavioral sciences, science which objectively study the organizing principles underlying human activities.

There are many indications that such organizing principles exist in language. Children normally learn to use their native language before they start school, and without much direct instruction. People can express and understand sentences they have never heard before. All languages have several ways of saying the same thing and all have ambiguities. 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 have grammatical systems with some unique properties, some universal properties, and some properties shared with other languages which 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 be his or her mind and a pencil and paper. Another may work with acoustic equipment. Others need computers. Some go into seldom-visited places to study, describe, and analyze little-known languages which may be in danger of extinction. Some go into our own communities to study the relationship between language variation and socioeconomic status, or race, or sex. Still others, interested in language change, spend time studying ancient languages.

Linguistics is not limited to scientific research for its own sake. Linguists may teach English as a foreign language. They may help design school programs which are relevant for Chicanos, blacks and native Americans. They may help intelligence and achievement test-makers avoid discriminating against non-middle-class white Americans, or help librarians use computers to manage massive amounts of information. They may work with speech clinicians to retrain people with linguistic disabilities.

Graduate Program

Emphasis is in graduate programs on theory and research. Students interested in nonuniversity careers may also take advantage of a number of courses in applied linguistics or in other fields, either in connection with doctoral work or as a standard option of the M.A. program.

Master of Arts in Linguistics

All students take a required set of core courses followed by comprehensive examinations in phonology and syntax-semantics. Students choosing to write a thesis take at least nine semester hours of elective coursework. Students choosing to take a degree without thesis must do a focus area (consisting of 12 hours of coursework and a comprehensive examination) and take at least three semester hours of elective coursework. The major purpose of the focus area is to qualify the student for immediate career opportunities. The focus may either be designed in advance by the student (subject to department approval), or be one of a set of predesigned options (e.g. Teaching English as a Foreign Language). All electives must be chosen from an approved list furnished by the Department. Students without prior training in linguistics should expect either to take 33 hours of coursework and write a thesis or to take 39 hours of coursework. All students must have a minimum of 30 hours of graduate credit to receive the degree, regardless of prior preparation.

The Ph.D. Program

The aims of the Ph.D. program are to develop highly competent graduates in theoretical linguistics and to provide graduates with necessary theoretical skills for understanding and exploring the close relationship between linguistics and related disciplines.

The core requirement for the program includes two upper-division syntax courses (e.g., Syntactic Theory and either Advanced Syntactic Theory or Advanced Syntactic Analysis) and two upper-division phonology courses (e.g., Phonological Theory and Advanced Phonological Theory), and at least two seminars, for a total of 116 semester hours. An approved 16-hour speciality area is also required, and students must achieve proficiency in two areas, at least one of which is a foreign language. Comprehensive examinations cover phonological theory, syntactic theory, theory of language change (historical linguistics and sociolinguistics), and the speciality area. An oral defense of the dissertation and three years of residence are also required. In addition, all candidates are required to gain supervised experience in teaching and research.

21250 Pragmatics in Libesian

3-0-3

These courses are in the field of human communication and their role in society. There are lecture/reading and discussion in the various readings. Prereq: Arts 12 semester hours in literary science, or consent of instructor.

21250 Instructor's Notes in Literary Science

0-0-3

21380 Theory

6-0-6

Prereq: Instructor consent of instructor.
Special Facilities
The Department of Linguistics has an acoustics laboratory, consisting of a sound spectrograph, a studio-type tape recorder and an audiomonitor chamber. There is also a remote type writer terminal connected with the IBM 360/65 computer at the University Computer Center.
The departmental reading room facilities allows a close relationship between faculty and students, a considerable influence of students upon departmental affairs, and a high degree of individual instruction. A large part of the student's education in Linguistics is conducted informally through daily conversations among students and faculty members. Students and faculty members also meet monthly in an informal colloquium to discuss research in which students and staff are engaged.
The department also has a practical laboratory to provide experience in teaching English as a foreign language.

Departmental Financial Aids
Teaching assistantships and research assistantships are available to qualified graduate students. Application should be made by March 1 for the following academic year. Students applying for financial aid and admission concurrently should submit their GRE scores.

Courses
Special English courses for foreign students. 100-151. 100-191. 100-197.

Primarily for Undergraduates
100-151 English for Foreign Students 3.5 hr. Training in spoken and written English for non-native speakers of English. Permission of department.
100-151 Language and Society 3.5 hr. Correlates between social and linguistic behavior; meaning of aspects of language behavior; educational and political implications of findings. Social Science Core courses.
100-26 Elements of Linguistics 3.5 hr. Basic introductory course for majors; graduate students possess same. Complexity of language; definitions of phonology, grammar, and semantics; nature of language; history of linguistics in philosophy, psychology, sociology, anthropology. Same as RL 25-120-60.
100-31 Basic Phonetics 3.5 hr. Acquisition of skills in bearing, pronouncing and transcribing oral speech sounds. Introduction to acoustic theory. Core or prerequisite: 100-26.

100-71 Elements of Phonology 3.5 hr. The nature of speech sounds; phonemic principles; the phonemic theory in phonology. Prerequisite: 120-11. 100-72 Elements of Syntax 3.5 hr. Foundational models of generative syntax. Phrase-structure grammars; phrase structure and meaning in generative grammar. Prerequisite: 100-71. 100-73 Methods in Linguistics 3.5 hr. General data for the working linguist: basic literature, methodology, analysis and writing. Prerequisite: 100-71 or equivalent. 100-74 Practical Seminar 3.5 hr. Basic skills for the working linguist: practical application, analysis, criticism and evaluation of research. Prerequisite: 100-71 or equivalent. 100-75 Special Project 3.5 hr. Independent research on a linguistic topic directed by member of staff.

For Undergraduates and Graduates
101-109 Introduction to Linguistics 3 hr. Survey of major general grammatical systems. Same as RL 100-151 and 100-191.
101-121 Introduction to Language and Communication 3 hr. Methods and research in area of interaction between linguistics and communication theory.
101-169 Language, Society and Education 3 hr. Fundamental principles of the sociolinguistic use of language. Prerequisites: 100-71 or equivalent. 101-180 Teaching English as a Foreign Language 3 hr. Survey of comparative analyses, teaching foreign language methods, Survey of ESL, testing, adapting and developing, research, teaching. Prerequisites: 100-71, 100-110, 100-170. Corequisite: 100-141.
101-213 Linguistic Field Methods 3 hr. Survey of field work in linguistics. Prerequisites: 100-26, 101-110, 110-110. 101-214 Language Data Processing 3 hr. Invention to computer use; interactive and stand-alone use of existing programs comparable to non-comparable language analysis. Same as RL 114.
101-215 Language Data Programming 3 hr. Study and construction of a language analysis language; program construction. Same as RL 115. 101-220 Historical and Comparative Linguistics 3 hr. Principles of linguistic change: comparative method and genetic classification of languages; internal reconstruction and language systems. Prerequisite: 101-150 or equivalent. Same as RL 120.
101-262 Phonological Theory 3 hr. Basic theories in generative phonology theory. Prerequisite: 101-121 or equivalent. 101-326 Introduction to Bilingualism 2-3 hr. Same as RL 160.
101-329 Introduction to African Languages 3 hr. Comparative study of African languages. Same as RL 165.
101-329 History of the English Language 3 hr. Development of phonological and grammatical structures of English from Old to Modern English; detailed historical description. Prerequisite: 100-160 or equivalent. Same as RL 130.
101-332 Classical Old English 3 hr. Structure of Old English and its historical position in the Germanic group of languages; reading of selected texts. Same as RL 130.
101-333 Applied Linguistics 3 hr. Same as RL 130.
101-340 History of the Chinese Language 3 hr. Same as RL 138.
101-342 The Structure of English 3 hr. Detailed analysis of structure of English. Prerequisite: 100-111 or 100-145.
101-358 Modern English Grammar 3-5 hr. View of grammatical traditions in relation to grammatical theory development and transformation into standard modern grammatical theory. Prerequisite: 101-150 or equivalent. Same as RL 140.
101-359 Modern English Pronunciation 5 hr. The study of Modern English pronunciation. Prerequisite: 101-150 or equivalent. Same as RL 141.
101-362 Advanced Modern English Grammar 3 hr. Study of modern English pronunciation. Prerequisite: 101-150 or equivalent. Same as RL 142.
101-401 Philosophical Language 3 hr. Study of logical methods and terminologies. Same as RL 150.
101-430 Introduction to Linguistics 3 hr. Study of logics in contemporary philosophy of language. Prerequisite: consent of instructor. Same as RL 150.
101-470 Language and Culture 3 hr. Study of language and social theory; social and cultural change; culture and society. Prerequisites: 110-150 or 110-160 or 120-150 or 120-160 or consent of instructor. Same as RL 170.
101-371 Anthropological Linguistics 3 hr. Structure of spoken languages, emphasizing the
techniques for collection and analyzing of linguistic data; the historical and geographical relationships among
various languages. Same as 113-174.
113-172 Physiology of Language 1 3.0 h.
Preparation of students for advanced study and research in physical and psychological aspects of
language in general and as a basis for their study of specific languages and dialects. Same as 113-171.
113-173 Language Teaching and Linguistics 2.0 h.
Psycholinguistic theory and practical problems of
foreign language teaching in connection with child
language, second language learning, teaching a second
dialect in revisions of "standard" dialects.
113-174 Linguistic Anthropology 3.0 h.
Concentration of selected topics in the ethnolinguistic
study of human language. Topics might include
language contacts, language change and transmission,
linguistic relativity, and language and social change.
Preparation: 113-170 or consent of instructor. Same as 113-172.
113-175 Language Development 3.0 h.
Survey of synchronic and diachronic processes of
acquisition of language in children. Same as 113-170 or
113-165.
113-176 Psychology of Language 3.0 h.
Alternative models of language acquisition: emphasis on
current and recent theoretical positions. Same as 113-
165, 113-150, or consent of instructor. Same as 113-150, 3.19 h.
113-177 Mental Processes of Speech and
Language 3.0 h.
Neuroanatomy and neurophysiology related to speech
and language processes; theory and research concerning
memory functions, neuropsychological processes and
neural mediation. Same as 113-116.
113-180 Language and Cognition 3.0 h.
Language processes as neural processes: conceptual and
experimental approaches. Preparation: 113-160 or
113-165.
113-181 Linguistic Perspectives 3.0 h.
Examines the role of language in the ceremonial life of
the Hopi Indians. For non-majors only. Same as 113-
181.
113-183 Presentation for Foreign Students 2.0 h.
Presentation of written and oral papers given in
class concerning a foreign language topic. Same as
113-160.
113-184 Transitional Development for
Foreign Students 2.0 h.
Emphasis is placed on disciplines in which current
students have difficulty and on the conditions that
may lead to success in this area. Preparation: consent
of department.
113-185 Listening Comprehension for
Foreign Students 2.0 h.
Practice in listening comprehension by exposing students
to authentic prerecorded language materials and
listening to authentic language. Preparation: consent
of department.
113-186 Grammar for Foreign Students 2.0 h.
Factual material not appropriate for students who have
had little or no exposure to the language studied. Pre-
paration: consent of department.
113-187 Comprehension for Foreign Students 2.0 h.
Participation in small group discussions to share ideas
about cultural values and customs and to practice in
oral expression. Preparation: consent of department.
113-188 Reading for Foreign Students 4.0 h.
Increasing reading speed and comprehension through
practice in reading, facilitating determination of
purpose and content, and comprehension of reading
material. Same as 113-187.
113-189 Writing for Foreign Students 4.0 h.
Writing as a constructive and substantive activity for
students to express themselves clearly and relevantly.
Preparation: consent of department.
113-201 History of the Semitic Languages 3.0 h.
History of Semitic languages from earliest times to present:
readings in Semitic texts in Hebrew, Aramaic, and
Koine Greek. Preparation: 113-130, 113-140.
113-203 Early Modern Egyptian Languages
and Literatures 3.0 h.
Same as 113-214.
113-210 Old Norse 3.0 h.
Old Norse; some consideration of Old High German, Old
Swedish, Old Norwegian; reading of selected texts. Same
as 113-336.
113-212 Middle High German 3.0 h.
Germans of High Middle German language from 12th to
14th century; selected readings from literature of period.
Same as 113-353.
113-213 Old High German 3.0 h.
High German; emphasis on earliest recorded forms; cultural,
political, social influences upon later forms; without
the Germanic sounds/e (8th to 10th centuries); readings from literature of period. Same as
113-355.
113-216 Greek 3.0 h.
Greeks of the 4th century B.C. and the present; emphasis
on literature; reading of selected texts. Same as 113-
338.
113-217 Latin 3.0 h.
Latin of the Roman Empire; emphasis on literature;
reading of selected texts. Same as 113-339.
113-218 Greek 3.0 h.
Modern and archaic Greek; emphasis on literature;
reading of selected texts. Same as 113-338.
113-219 Latin 3.0 h.
Modern and archaic Latin; emphasis on literature;
reading of selected texts. Same as 113-339.
113-220 Comparative Romanes and
Italics 3.0 h.
Same as 113-391, 113-392, 113-393.
113-221 Introduction to the Romance
Languages 3.0 h.
Same as 113-394.
113-222 The Greek and Latin Muses 3.0 h.
Same as 113-395.
113-223 Early Modern English Language
and Literature 3.0 h.
Same as 113-214.
113-225 History of the Semitic Languages
and Literatures 3.0 h.
History of Semitic languages from earliest times to present:
readings in Semitic texts in Hebrew, Aramaic, and
Koine Greek. Preparation: 113-130, 113-140.
113-226 Hebrew 3.0 h.
Modern and archaic Hebrew; emphasis on literature;
reading of selected texts. Same as 113-337.
LITERARY ARTS/LITERATURE, SCIENCE AND THE ARTS

133.375 Sundari: Language Varieties 2 s.h.
Same as 26.350.

133.387 Postman / English Linguistics 3 s.h.
(Designed research in structure and history of English language. May be repeated, with different research areas, to credit.

133.390 Special Projects am.

133.450 Master's Thesis 2 s.h.

133.499 Ph. D. Thesis am.

LITERATURE, SCIENCE AND THE ARTS

Program chair: Donald D. Kehrein
Faculty professors: Lateef Otokun (Political Science); John B. Hare (Business Administration); Richard G. Hare (Music); James C. Denson (Chemistry and Materials Engineering); Robert Whittaker (Religious); John A. Van Her (German); Richard J. Witten (Sociology); associate professors: Michael J. Hesse (Music); William D. Duff (Educator); William J. Knott (Physics and Astronomy); Donald G. Seedahle (English); George Miklaszewski (Philology); visiting professors: Steve Fess (Philosophy); Judith F. Alman (Arts); Degree offered: B.A.

Courses in the Interdisciplinary Program in Literature, Science and the Arts (LSA) should consult with the chair before the end of the sophomore year.

Honors
Superior students who undertake a further program of independent study may earn the Bachelor of Arts degree "with honors." To be admitted as a candidate for Honors, the student must have the endorsement of the chair of the interdisciplinary Program in Literature, Science and the Arts.

Courses

12.310 The Perils of Happiness 2 s.h.
Treatment of historical happiness in various types of human experience by Aristotle, Freud, C. S. Lewis, Voltaire, Beckett, Sartre, etc.

12.312 Love in the Western World 2 s.h.
Meeting, intercourse, and varieties of love as they center in literature, music, art, philosophy, religion, and religion.

12.313 Myths and Realities 2 s.h.
Interplay between myth and reason as exemplified in Western thought; reading from Sophocles, Plato, Milton, Machiavel, anthropologists, novelists.

12.317 The Good Society 4 s.h.
Views of social and ethical standards of human relations, as seen in works by Plato, Hobbes, Montesquieu, Shakespeare, Locke, Gibbon, Marx, and contemporary novelists.

12.323 Values in the Contemporary World 4 s.h.
Modern problems in political philosophy and ethics, examined through writings of contemporary ethical theorists and novelists.

12.326 Biblical Basics: Christianity in Contemporary Social Thought 2 s.h.

12.327 Human Nature and the Impact of Science 2 s.h.
Relationship of scientific to humanistic, social, and religious thought. Same as 13.154.

12.371 Forms and Ideas in the Arts 4 s.h.
Interplay between forms and other cultural patterns, institutions and myths, through close examination of creative and theoretical writings, specific works of music and graphic art.

12.374 Roots of Modern Culture 2 s.h.
Literary and social roots of functionalism.

12.375 Ritual Interpretation in Oriental and Opera 3 s.h.

12.379 Music as Drama 2 s.h.
Literature and music in literature and music and their applications to popular and other musical works with units.

12.380 Final Projects am.

12.381 Independent Study for Honors 2 s.h.
House committees must line 33.137 and 33.140, for a total of six semester hours. Cannot be taken concurrently.

12.382 Independent Study for Honors 2 s.h.

DIVISION OF MATHEMATICAL SCIENCES

Degree offered: B.A., B.S., M.S., Ph.D.

Undergraduate Program
The Division of Mathematical Sciences offers a flexible undergraduate program which may be tailored to the student's needs and interests. In particular, programs can be designed which will prepare the student for in-depth or advanced study in any area of the mathematical sciences.

The Bachelor of Arts Degree
In addition to at least one year of calculus (either 22.25-26, Calculus I and 22.35-36, Engineering Calculus I-II), the student must take at least seven additional courses, each carrying at least 3 s.h. credit. Except for students electing the applied mathematical sciences option, these seven courses must be from the Division, and (except for students seeking a secondary teaching certificate) must include either one of these:

22.116 Operating Systems Principles
22.125 Advanced Computer Organization and Architecture
22.126 Programming Language Foundations
Suggested Programs

Some typical programs in various areas are listed below. They need not be followed exactly; rather, it is expected that each student will meet with her or his advisor and work out a program which reflects his or her mathematical interests. The requirements are flexible enough to allow for changes in students' interests.

A student who is majoring in mathematics and who is interested in earning a Master of Business Administration (M.B.A.) with only one year of graduate study should take appropriate business courses as an undergraduate. To do this successfully, the student should consult with the associate dean of the College of Business Administration, as well as his or her advisor, before the senior year.

General Program

Unless a student has a strong interest in a special area in mathematics, a rather general program is suggested. This type of program should include 22C:7 Introduction to Computing with FORTRAN, preferably along with calculus during the freshman year. The program should also include a course such as 22M:50 Elements of Discrete, Theory, 22M:56 Fundamental Properties of Spaces and Functions, or 22M:103 Foundations of Mathematics I, and it should include at least one semester's work in statistics and probability.

Additional work, in particular the required 100-level course, should be taken in whatever area of mathematical sciences is of most interest to the student. Students contemplating employment in government or industry upon completion of the B.A. or B.S. degree should consider 22C:17 Programming, with PLI and courses in numerical analysis, actuarial science, 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 is a sequence in calculus and linear algebra (22M:23-26 Calculus I-III, 22M:29 Calculus IV, and 22M:37 Introduction to Linear Algebra) or 22M:33-35 Engineering Calculus I-II and 22M:38 Differential Equations and

Applied Mathematical

Sciences Option

The applied mathematical sciences option is designed to reflect the increasing diversification of applications of mathematics and statistics to the social sciences, biological and physical sciences, management, business, ecology, linguistics, and engineering. For this option, the seven courses taken in addition to the first year of calculus must include:

One semester of linear algebra (either 22M:27 Introduction to Linear Algebra or 22M:36 Differential Equations and LinAlg);

At least three courses from the Division numbered 22M:50 or above (excluding 22M:20-21 or 22S:102 or above, at least one of which must be at or above the 100-level); and

At least three additional quantitative courses from any one department outside of the Division. At the discretion of the adviser, courses from two closely related departments might be used.

Students electing this interdisciplinary option will be appointed to a specially designated program adviser with whom they can work out an acceptable program. Such a program must include some concentration in a particular area. Some experience with the use of the computer is also required.

Transfer Students

Transfer students must earn at least 9 s.h. of credit in the Division beyond the first year of calculus or beyond the first course in computer science (22C:18).

The Bachelor of Science

Degree

In addition to the requirements outlined above for the Bachelor of Arts degree, the Bachelor of Science degree requires two one-semester courses from the Division, each carrying at least 2 s.h. of credit.

or

22S:161 Introduction to Mathematical Statistics I

22S:160-181 Actuarial Theory I-II

The following do not count toward the seven required courses:

22C:1 Survey of Computing

22C:9 Programming with COBOL

22C:100 Introduction to Computing with FORTRAN

22C:100 Introduction to Programming with PL/1

22C:107 Programming with PL/1

22C:108 Assembly Language Programming

22C:109 Programming with COBOL

22C:110 Computing with PL/1

22M:1 Basic Mathematical Techniques

22M:2-3 Mathematical Techniques

22M:4 Matrix Algebra

22M:7 Quantitative Methods I

22M:10-11 Fundamentals of College Mathematics I-II

22M:15 Mathematics for the Biological Sciences

22M:16 Calculus for the Biological Sciences

22M:20 Elementary Functions

22M:25-26 Calculus I-II

22M:29 Co-syllabus Laboratory for Calculus and Linear Algebra

22M:33-35 Engineering Calculus I-II

22M:80 Theory of Arithmetic

22M:81 Secondary for Elementary Teachers

22S:5 Quantitative Methods II

22S:25 Elementary Probability and Statistics

22S:102 Introduction to Statistical Methods

Students who complete the requirements for a secondary teaching certificate may take any two 100-level courses among the seven courses in mathematics.

23M:171 Numerical Analysis:

Differential Equations and Linear Algebra

Or one of these combinations:

22M:120-121 Abstract Algebra I-II

22M:130-131 Theoretical Mechanics I-II

22S:153 Introduction to Probability

22S:167 Introduction to Stochastic Processes

Students are encouraged to take at least one course in computer science and a substantial program of courses from the College of Business Administration. Students majoring in computer science and in computer science and applied mathematics should take 225:116 Introduction to Linear Algebra, 225:118 Complex Variables, and 225:177 Numerical Analysis: Nonlinear Equations and Approximation Theory, and 225:171 Numerical Linear Algebra, which are recommended. Students interested in computer science and in computer science and applied mathematics should take 225:130-131: Theoretical Mathematics I, II, 225:172 Methods of Solutions of Boundary Value Problems, 225:173 Transform Calculus, and 225:180-181 Topics in Applied Analysis I, II.  

Other general courses which may be of interest are 225:50 Elements of Group Theory, 225:526 Data Analysis for Applications, 225:116 Introduction to Analysis II, 225:126 Elementary Theory of Numbers and 225:150 Matrix Theory.  

Students in applied mathematics should be familiar with computer programming. 225:27 Introduction to Computing with FORTRAN can be taken early along with calculus) and with the basic idea of probability and statistics (the course 225:153 Introduction to Probability and 225:154 Introduction to Mathematical Statistics I for 225:130 Probability and Statistics are appropriate). To acquire an understanding of how mathematics is used in other areas, it is recommended that the student take a set of courses in the field of mathematics applicable to those areas. These may include 225:177 Mathematical Algorithms for Actuaries.  

For general requirements for teacher education, see "Curriculum of Education."  

Mathematics courses required for students in mathematics education are 224:25-26 Calculus I-II, 225:27 Introduction to Linear Algebra, 225:50 Elements of Group Theory, 225:70 Euclidean Plane Geometry, and 225:56 Fundamental Properties of Spaces and Functions (to be taken before 225:135 Methods of Mathematical Analysis). A 100-credit course in the same area of mathematics may be substituted for any one or more of these. Students are also required to have proficiency in one computer programming language. In the 100-credit course, the student should achieve for breadth. It is recommended that the student select at least one of these courses in the Department of Statistics. The student might select from these 100-credit courses: 225:120-121 Abstract Algebra I-II, 225:115-116 Introduction to Analysis I-II, 225:103-104 Fundamentals of Mathematical Analysis I, II, 225:101-111 Elementary Topology I-II, 225:120 Probability and Statistics, 225:154 Introduction to Probability, and 225:154 Introduction to Mathematical Statistics I.  

Pure Mathematics  


Probability and Statistics  


Students should also select one or two courses in computer science from 225:7 Introduction to Computing with FORTRAN, 225:17 Programming with Pl/I, or 225:18 Assembly Language Programming, and one or two courses in mathematical analysis from 225:50 Fundamental Properties of Spaces and Functions, 225:155 Analysis for Applications and 225:116 Introduction to Analysis I. Substantial work in one of the biological, social, physical or engineering sciences is also highly recommended.  

Further courses in probability and statistics may be selected from courses in the Department of Statistics numbered 100 and above excepting 225:102 and 225:125.  


Applied Mathematical Science  

Coordinated with William J. Hiba, Karl E. Legranger, Paul C. Weinan (chair), Ph.D.  

Creative Leivestock of an Applied Mathematical Scientist: An Inquiry into the Formulation of Social Concepts and Problems in Mathematical Terms; the Perception of the Resultant Mathematical Problem; the Discussion, Interpretation, and Evaluation of the Results of the Analysis; the Assumption of New Ideas and Areas of Application; and the Development of Mathematical Theories in Areas Which Have Not Historically Been Subjected to Systematic Mathematical Treatment. These affective surveys, in turn, lead to the generation of new mathematical ideas .
and theories as a result of abstraction or generalization. Opportunities for careers include faculty positions in colleges and universities, research positions in industrial and government laboratories, professional consulting positions and software computer consulting. The mathematical modeling taught by the student is useful in a wide variety of situations in this technological world.

Applied Mathematics and Computer Science at Iowa is an autonomous, broadly-based interdisciplinary program leading to the Doctor of Philosophy degree. The program seeks to help the student achieve a basic consonant of advanced mathematics, at least one science (behavioral, biological, engineering, physical or medical), and the methods of applied mathematics. Additionally, the program seeks to develop the "attitude" of an applied mathematical scientist by emphasizing the totality of the discipline.

Each student will have a committee of three or more faculty members to guide and carefully supervise his or her program. The individual plan of study will be specifically developed by incorporating the desired balance in the appropriate science, advanced mathematics and applied mathematical sciences with the student's background, interests and abilities.

Undergraduate Program
Undergraduate major in computer science should plan to take a strong background in mathematics as well as in programming languages and computer systems. To accomplish this, the following core courses are required for a B.A. degree in computer science:

**Mathematics Requirements**
- 22M:35 Calculus I 4 sh.
- 22M:36 Calculus II 4 sh.
- 22M:27 Introduction to Linear Algebra 4 sh.

**Computer Science Core Requirements**
- 22C:16 Introduction to Programming with PL/1 3 sh.
- 22C:17 Programming with PL/1 3 sh.
- 22C:18 Assembly Language Programming 3 sh.
- 22C:21 Data Structures 3 sh.
- 22C:22 Programming Language Concepts 3 sh.
- 22C:31 Introduction to Systems Hardware 3 sh.
- 22C:32 Introduction to Systems Software 3 sh.
- 22C:50 Discrete Structures 3 sh.
- 22C:55 Elementary Numerical Analysis 3 sh.

Total 39 sh.

As students are urged to take both 22C:25 and 22C:55. Students who plan to go on to graduate work are especially urged to take 22C:25 and either 22C:55 or 22M:170.

To receive a B.S. degree, the student must take two additional courses (each having at least 3 sh. credit) in the Division of Mathematical Sciences. In addition, the student pursuing this major for either a B.A. or B.S. must complete an approved elective program. The Handbook for Computer Science Undergraduates, available at the Mathematical Sciences Division Office, includes suggested elective programs.

Graduate Programs
To provide the broadest possible background for its students and to take advantage of courses offered in other fields, the normal curriculum in computer science includes work in several related fields. Within these limits, an advanced degree program in computer science can be constructed to serve the particular needs of a student. However, a certain core of courses should generally be taken by all candidates for an advanced degree in this field.

If a student is concerned about a specific subject area in which computer science is a necessary but not a major part of his or her goal, then the advisor can be better served by earning a degree in that other area with a heavy concentration of courses in computer science. For instance, the Computer Science Department cooperates with the Program in Applied Mathematical Sciences in planning interdisciplinary doctoral programs.

Although the plan of study of each advanced degree candidate is individualized to fit his or her needs, each student will be expected to study in the following categories: programming, computer systems, and computer systems theory. The requirements for the M.S. and Ph.D. degrees are outlined below, and specific details including grade-point requirements, comprehensive examination information, student review policies, and complete course descriptions are given in the departmental Graduate Student's Handbook, which is available at the Mathematical Sciences Division Office. The M.S. graduate will find careers as programmers or systems analysts in industry, business or government, as well as in teaching and research.

**Graduate Program Requirements**
- Core courses:
  - 22C:60 Computer Science Programming 3 sh.
  - 22C:61 Computer Science Theory 3 sh.
  - 22C:62 Computer Science Systems 3 sh.
- Elective courses:
  - 22C:70 Computer Science Research 3 sh.
  - 22C:71 Computer Science Project 3 sh.

Total 39 sh.

As students are urged to pursue both 22C:60 and 22C:61. Students who plan to go on to graduate work are especially urged to take 22C:60 and either 22C:61 or 22M:170.
year colleges. The Ph.D. student can find the same opportunities and in addition can find a career in research and teaching at the advanced level.

**Master of Science**

Advisor and student will draw up a plan of study which will ensure the student achieves proficiency equivalent to that which can be gained by taking the following courses:

22C: 192 Advanced Computer Organization and Architecture 3 s.h.

22C: 193 Programming Language Foundations 3 s.h.

22C: 195 Introduction to Computer Theory 3 s.h.

Other 22C courses selected from 118, 119, 127, 144, 145, 178, or any 300-level course 6 s.h.

Mathematics and statistics courses 6 s.h.

Additional courses selected by the student with the approval of the advisor 9 s.h.

Total 30 s.h.

Recommended mathematics, statistics, and additional courses depend upon the student's career objectives.


Any M.S. candidate may elect to write a thesis, and with the adviser's consent may apply up to six semester hours of thesis credit toward the total required for the M.S. degree. The minimum number of semester hours for the M.S. degree in computer science with or without thesis is 30.

**Final Examination**

The candidates for the M.S. degree must successfully complete one of the examinations listed below. Each is a three-hour written examination, except the thesis defense, which is oral.

- Programming and Programming Languages Computer Systems and Hardware
- Computation and Automata Theory A thesis defense

Student should consult the Graduate Student's Handbook for further information.

**Admission**

The student seeking admission to the M.S. program in Computer Science is subject to the general admission requirements of the Graduate College (see "Graduate College"). It is strongly recommended that the applicant have a B.A. or B.S. in computer science, mathematics, engineering, or physical science. A student whose undergraduate program does not include equivalents of the courses required in the Computer Science undergraduate curriculum will be expected to complete these courses prior to admission to graduate courses, for which they are prerequisites.

**Doctor of Philosophy**

**Course Requirements**

Doctoral students are expected to complete about 90 semester hours of graduate work, including a thesis. The student need not have a master's degree when beginning the Ph.D. program, and need not acquire one. Usually, however, the Ph.D. student acquires a master's degree either in computer science or in some other mathematical or physical science. Every Ph.D. student in computer science is expected to be knowledgeable in the following four categories:

- Programming concepts, including programming, programming languages, design of algorithms, simulation, artificial intelligence, and numerical analysis:
  - Theory of computation, including automata theory, computability and formal languages, and analysis of algorithms: Mathematical foundations, including set theory, algebra, analysis, logic, and graph theory; and
  - Computer systems, including operating systems, computer architecture, and logical design and database systems.

Although the plan of study for each student will be drawn up by the student and his or her committee to fit any special needs, every student is expected to complete approximately half of the coursework in the first two categories above.

The student must complete three courses with grades of A or B, at least one of which is at the 200 level, in each of two areas. One area may be selected from:

- Algebra
- Analysis
- Logic and set theory
- Satisfiability and probability
- Numerical analysis

The second area may be selected from the above, or from:

- Electrical engineering
- Operations Research
- Business administration
- Linguistics
- Other related areas approved by the department

If the student selects statistics and probability as one of the areas, the advanced course may be chosen at the 100 level.

**Comprehensive Examination**

A student is admitted to candidacy for the Ph.D. degree in computer science only after completing the comprehensive examination. In addition, the student must be recommended by a member of the computer science faculty. The comprehensive examination will normally be taken only when the student nears completion of coursework as required by the plan of study. There are three three-hour written examinations, which may be followed by an oral review:

Part I: On all aspects of programming and programming languages;

Part II: On the principles of computer architecture and operating systems; and

Part III: On the theoretical aspects of computer science, including automata theory, computability and formal languages.

All examinations are described in the Graduate Student's Handbook.

**Thesis**

After demonstrating competency in each of the three required areas of computer science and maintaining the required GPA, the student will prepare a written research proposal which will be defended in an oral
Master of Science

Program I (designed for secondary school teachers)

Required courses

Two from 22M:115-116 Introduction to Analysis I-II and 22M:210-211 Analysis I-II, including either 22M:116 or 22M:211; Two from 22M:130-131 Abstract Algebra I-II and 22M:205-206 Introduction to Algebra I-II, including either 22M:121 or 22M:206; and Two in mathematics education.

Course Distribution

A minimum of 30 semester hours of graduate credit, including at least 24 semester hours in these Division of Mathematical Sciences courses:

Any course in the Department of Mathematics numbered 100 or above, except 22M:105 Analysis for Applications; either 22C:122 Advanced Computer Organization and Architecture, 22C:123 Programming Languages Foundations, 22C:135 Introduction to Computation Theory 22C:145 Artificial Intelligence I, or any 100-level course in computer science; and Either 22S:183 Introduction to Probability, 22S:194 Introduction to Mathematical Statistics, 22S:187 Introduction to Stochastic Processes, or any statistics course having any of these as a prerequisite.

Program II

Required courses

Two from 22M:115-116 Introduction to Analysis I-II and 22M:210-211 Analysis I-II, including either 22M:116 or 22M:211; and Two from 22M:130-131 Abstract Algebra I-II and 22M:205-206 Introduction to Algebra I-II, including either 22M:121 or 22M:206.

Course distribution

At least 30 semester hours of credit, including a minimum of 24 semester hours in the Division of Mathematical Sciences, and a minimum of 21 semester hours in the Department of Mathematics from the courses listed below:

Any course numbered 100 and above except 22M:105 Analysis for Applications.

22C:122 Advanced Computer Organization and Architecture, 22C:123 Programming Languages Foundations, 22C:135 Introduction to Computation Theory, 22C:145 Artificial Intelligence I, or any 100-level course in computer science; and 22S:194 Introduction to Mathematical Statistics, 22S:193 Introduction to Probability, 22S:187 Introduction to Stochastic Processes, or a course which has any of these as a prerequisite.

Comprehensive Examination

With the permission of the graduate committee, a candidate in this program may substitute an appropriate part of the Ph.D. comprehensive examination for part of the master's examination.

Program III

For nondepartmental students on route to a Ph.D. in another area, not required courses. Course distribution same as Program II.

Comprehensive Examination

The student in program III will be considered to have passed the comprehensive examination for the master's degree in mathematics upon satisfying the following two conditions:

Maintaining minimum grade-point average of 3.0 in all mathematics courses taken for the master's degree in mathematics; and Successful completion of the comprehensive Ph.D. examination in the chosen area.

A student in Program III will be assigned a mathematics advisor who will work with the student and the student's advisor in the area outside the Division to establish an appropriate curriculum for the master's degree in mathematics.

General Information

To be admitted to candidacy for the M.S. degree in mathematics, a student must have completed work in undergraduate mathematics roughly equivalent to the program previously described for an undergraduate major in the Division of Mathematical Sciences. A student whose preparation does not meet this requirement may be required to take certain additional courses to cover the deficiency.

It is expected that candidates for the Master of Science degree will be able to complete their degree programs in four summer sessions or one academic year and one summer session. Required courses and a broad selection of electives are offered regularly during summer sessions. In addition, each semester of the academic year at least one course of interest to teachers is offered by the Division of Mathematical Sciences during the late afternoon or evening.

Doctoral Programs

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 other departments in the Division. There is thus no formal departmental policy distinguishing between pure and applied mathematics.

The Department of Mathematics also cooperates in interdisciplinary doctoral programs with the program in Applied Mathematical Sciences.

The requirements for the Ph.D. in mathematics include 72 hours of graduate credit, at least three years of graduate residence, including at least one at The University of Iowa, and passing of a comprehensive qualifying examination as described below. Also required in the field of research chosen by the candidate are a comprehensive dissertation, the writing of a thesis and a final examination. Ordinarily, the candidate must demonstrate to the advisor's satisfaction proficiency in French, German or Russian.

The qualifying examination covers three of the following areas: algebra, analysis, logic and foundations, topology. Each student decides in which three of these areas he or she wishes to be examined. The examinations are given each academic year. Further information on these examinations is available in the Mathematics Office.

Beginning graduate students who plan ultimately to work for the Ph.D. should follow the guidelines given above for the various M.S. programs, and should seek their advisor's help in planning a course of study that will prepare them for the comprehensive qualifying examination. Students who enter after having taken some graduate work elsewhere should likewise consult an advisor for an evaluation of the previous work and the planning of further study.

A Ph.D. in mathematics education is also...
Actuarial Science
(with or without thesis)
225:153 Introduction to Probability
225:154 Introduction to Mathematical Statistics I
225:156-157 Actuarial Theory-HI
225:172 Mathematical Analysis I or
Actuarial Analysis
225:187 Seminar: Actuarial Theory
At least three courses from:
225:179 Graduation
225:183 Demography and Life Table Construction
225:184 Risk Theory
225:185 Theory of Pension Funding
Students must take at least one course from outside the Division of Mathematical Sciences, preferably from the College of Business Administration. The 225:153-154 requirement will be waived only if the student has passed Part Two of the Examinations of Society of Actuaries.

Theoretical Statistics and Probability
(with or without thesis)
224:115 Introduction to Analysis I
225:153 Introduction to Probability
225:154-155 Introduction to Mathematical Statistics I
225:157 Introduction to Stochastic Processes
At least two of these:
225:170 Introduction to Nonparametric Statistics
225:172 Topics in Statistics
225:233-234 Theory of Statistics I
225:235 Linear Models
225:236 Multivariate Analysis
225:234-235 Theory of Probability I

Applied Statistics (without thesis)
225:133 Introduction to Probability
225:134 Mathematical Statistics I
225:158 Analysis and Design of Experiments
or
225:156 Applied Time Series Analysis
or
225:151 Application of Multivariate Statistical Techniques
or
225:162 Regression Analysis
225:173 Statistical Computation and Consulting
At least two of these:

The remainder of the program will consist of selections from the above courses or, with the advisor's approval, courses in other fields related to the thesis.

Experience in a computer language (PL/I, FORTRAN, or BASIC) is required. If the student satisfies the requirement by taking a course, that course may not be counted toward the M.S.

Ordinarily involving 3 s.h. of 225:191 for two semesters, the typical thesis would be 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.

Doctor of Philosophy
To satisfy the course requirements for a Ph.D. in statistics, a student must successfully complete:
225:153 Introduction to Probability
225:154-155 Introduction to Mathematical Statistics I
225:158 Analysis and Design of Experiments
225:157 Introduction to Stochastic Processes
225:175 Statistical Computation and Consulting
225:101-115 Introduction to Analysis I

At least two of the following:
225:156 Applied Time Series Analysis
225:157 Application of Multivariate Statistical Techniques
225:162 Regression Analysis
225:170 Introduction to Nonparametric Statistics
At least five of the following:
225:233-234 Theory of Statistics I
225:235-236 Linear Models - Multivariate Analysis
225:234-235 Theory of Probability I

(If it is recommended that students take 225:173, for at least two hours credit, in two different semesters.)
In addition, each s.w.t.e.r. graduate student is registered for six or more credit hours, the advisor's registration must include at least one course of at least two hours of credit offered by the Statistics Department, other than 225:191 Individual Study.
225/197 Readings in Statistics and/or Actuarial Science, or 225/295 Reading Research.
During the graduate program, students may wish to take courses or seminars in other departments for the achievement of certain auxiliary goals of the doctoral degree in Statistics — to relate his or her area or specialization to other fields of knowledge to acquire the ability to use electronic digital computing equipment, or to learn the language skills needed to read foreign scientific journals and be able to respond in personal contacts with foreign statisticians.
Each student is required to include in his or her program a component which involves experience in either teaching or statistical consulting.
Students expecting to require financial assistance for the third year must have taken the qualifying examination by the beginning of the spring semester of the second year.
The qualifying examination covers topics studied in 225/150 Introduction to Probability, 275/154-155 introduction to Mathematical Statistics I and II, and 225/158 Analysis and Design of Experiments. The examination may be used in lieu of the master's written examination.
The student requests a comprehensive examination at the completing most of the coursework in higher approved plan of study, typically toward the end of the third year or later.
The student must achieve at least a 5.25 grade average on all courses in the plan of study. A program which does not conform to the prescribed requirements, but which is of high excellence, may be approved by the Department Chair.

Special Festivals
Because statistics are often learned with other sciences in research projects, it is important that students gain familiarity in group efforts. In several courses, the Department tries to provide this experience. In addition, the Department houses the Statistical Consulting Center, which offers assistance to members of the University community in the planning of experiments and carrying out the analysis of experimental data. Under faculty supervision, graduate students participate in these activities as part of their training. Although the majority of projects involve statistical problems arising in the research conducted by students in the departments, the Center also seeks involvement in larger research projects and in the writing of proposals. For example, a team of students and faculty performed an extensive analysis of the factors relating to highway deaths in Iowa.

Courses
Primary for Undergraduates
Note: The student should have completed Math 115 for a course in Probability. Department of Statistics numerical shows 120 min credit for students to complete this course number before the fall semester of the first year.
225/262 Mathematical Methods II 3.0.6
Integration of 225/201, continuation of 225/261. Abstract analysis, elementary probability, estimation theory, one-class tests, hypothesis testing, correlation, and regression.
225/263 Elementary Probability and Statistics 3.0.6
Graphing techniques for probability, expectations, measures of central tendency and dispersion, comparison, regression and prediction, not possible to probability distributions of random variables and sampling, large sample theory, estimation and tests of significance, introduction to the analysis of variance, introduction to nonparametric statistics. Prerequisites: College algebra or equivalent.
225/264 Probability and Statistics for the Engineering and Physical Sciences 2.0.6
File pathology models, random variables, important limits and continuous distributions, discrete statistics, point and interval estimation, tests of hypothesis, regression. Prerequisite: 220/168. Emphasis on applications.
For Undergraduates and Graduates
225/110 Elementary Statistics 2.0.6
Elementary course on statistical methods primarily for research in health science and related fields. Topics include descriptive statistics and an introduction to estimation and testing of hypotheses.
225/114 Introduction to Statistical Methods 2.0.6
Priority for students who are not statistics majors. Same as PSY 110. 3/1.43.
225/116 Introduction to the Design of Sample Surveys 3.0.6
Prerequisite: 225/110 or 225/120. Same as SS 115.
225/120 Mathematical Statistics 2.0.6
Same as SS 122.
225/195 Probability and Statistics 4.0.6
Fundamentals of probability theory, random variables, properties of random variables, distribution, expectation and variance, estimation and hypothesis testing, regression. Prerequisite: 225/114.
225/197 Actuarial Principles of Life Insurance 3.0.6
Priority for students interested in actuarial work and actuarial science. Elements of probability and mathematics of finance applied in the study of the properties of insurance policies, types of insurance, annuities, reserves, assets, and liabilities. Prerequisites: SS 115.
225/177 Applied Statistical Methods and Computerization 3.0.6
Practical application to sampling, statistical analysis, decision theory, confidence intervals, test of hypotheses, and analysis of significances. Answered many of the social sciences.
225/131 Bayesian Methods with Applications 3.0.6
Same as SS 131.
225/133 Quality Control, Reliability and Engineering 3.0.6
Prerequisite: 225/115. Same as MCE 133.
225/138 Bayesian Statistics 3.0.6
Prerequisite: 225/158. Same as SS 138.
225/145 Design and Analysis of Experiments in Biomedical Sciences 3.0.6
Same as SS 145.
225/146 Intramural Statistical Methods 4.0.6
Prerequisite: 225/142 or equivalent. Same as SS 146.
225/160 Introduction to Probability 3.0.6
Introduction to a theory and application of probability models, including probability distributions, random variables, conditioning, independence, moments, generating functions, laws of large numbers, random walks. Prerequisite: 225/142 or 225/145.
225/164 Introduction to Mathematical Statistics I 3.0.6
Sampling distributions, point, and interval estimation, statistical hypotheses testing. Emphasis on statistical data collection. Prerequisite: 225/115.
225/165 Introduction to Mathematical Statistics II 3.0.6
Hypothesis testing methods, sufficient statistics, ordered statistics, and other topics such as research analysis, multivariate regression, classification, vector procedures, and matrix theory, analysis of variance, and nonparametric statistics. Continuation of 110 and 114.
225/170 Applied Time Series Analysis 3.0.6
Fat. Smoothing, autoregressive models, autoregressive moving-average models, spectral density functions, linear orthogonal and nonorthogonal models, stationary and nonstationary processes, estimation and prediction of linear models, estimation and parameter estimation of spectral density, analysis of time series data via general purpose digital computer. Prerequisite: 225/115 or 225/119.
225/171 Sampling Surveys 3.0.6
Prerequisite: 225/145 or 225/158. Same as SS 171.
225/180 Analysis and Design of Experiments 4.0.6
Models in analysis of variance, single factor multiple comparisons, blocking, multiple factor methods, nested, factorial designs, Latin square designs, analysis of covariance, analysis of variance, factorial designs, response surface methodology. Same as Psych 213.
225/182 Multiple Linear Regression 4.0.6
Same as SS 182.
225/195 Multiple Linear Regression 4.0.6
Same as SS 195.
225/196 Applied Statistical Decision Theory 3.0.6
Comparison of decision rules including Bayesian and minimax decision theory, dependence on classification of statistical models, multiple decision functions, capital investment, central tendency, and regression applications. Prerequisites: 225/115.
225/199 Application of Multiple Regression Analysis 3.0.6
Pract. 225/168 or 225/168 or equivalent. Same as SS 199.
The Bachelor of Science Degree

The objectives of the undergraduate program in microbiology are to prepare students for careers in science, especially in their chosen majors, and to provide them with a broad background in other subjects, so they may relate microbiology to other fields of human endeavor.

An undergraduate student majoring in microbiology in Iowa must meet general College of Liberal Arts requirements. The student must complete a minimum of 14 semester hours in microbiology to obtain a B.S. degree; no more than 2 semester hours of special problems (61-14) Problems in Microbiology) may count toward this requirement. Students desiring to apply for certification by the National Registry of Microbiologists are required to earn 30 s.h. of credit in biology, 20 semester hours of which must be in microbiology. Certification is required for employment or advancement in some areas. Mathematics and science courses required by the Department for the B.S. degree should be taken at semester hours, except under unusual circumstances with the consent of the adviser. This is a typical curriculum for undergraduate majors:

<table>
<thead>
<tr>
<th>Freshman Year</th>
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</thead>
<tbody>
<tr>
<td><strong>First Semester</strong></td>
<td></td>
</tr>
<tr>
<td>413 Principles of Chemistry I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22M15 Mathematics for the Biological Sciences</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22M20 Elementary Functions</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>101 Rhetoric</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>102 Rhetoric</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>Foreign Language</td>
<td>3-4 s.h.</td>
</tr>
<tr>
<td>Physical Education</td>
<td>2 s.h.</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>15-16 s.h.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Second Semester</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>414 Principles of Chemistry II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>418 Elementary Chemistry Laboratory I</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>Core course or 22M16 Calculus for the Biological Sciences</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>or 22M25 Calculus I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>or 22M35 Engineering Calculus I</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

| Foreign language | 3-4 s.h. |
| Core course or 22M16 Calculus for the Biological Sciences | 4 s.h. |
| or 22M25 Calculus I | 4 s.h. |
| or 22M35 Engineering Calculus I | 4 s.h. |
| **Total** | 15-17 s.h. |

<table>
<thead>
<tr>
<th>Sophomore Year</th>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>First Semester</strong></td>
<td></td>
</tr>
<tr>
<td>4121 Organic Chemistry I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>3723 Principles of Animal Biology</td>
<td>5 s.h.</td>
</tr>
<tr>
<td>Core course or 22M26 Calculus II</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>or 22M36 Engineering Calculus II</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>or 61157 General Microbiology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>18 s.h.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Second Semester</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>4122 Organic Chemistry II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>4141 Intermediate Chemistry Laboratory I</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>4101 Elementary Quantitative Analysis</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>Core, elective, or advanced microbiology courses</td>
<td>8 s.h.</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>17 s.h.</td>
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<thead>
<tr>
<th>Junior Year</th>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>First Semester</strong></td>
<td></td>
</tr>
<tr>
<td>99120 The Chemistry of Biological Materials</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>2911 College Physics</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>Physical Education</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>Core, elective, or advanced microbiology courses</td>
<td>6-8 s.h.</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>15-17 s.h.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Second Semester</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>99120 Metabolism</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>2912 College Physics</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>Core, elective, or advanced microbiology courses</td>
<td>8 s.h.</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>15 s.h.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Senior Year</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Core, elective, or advanced microbiology courses</td>
<td>30-34 s.h.</td>
</tr>
<tr>
<td><strong>May also be taken the first semester of the junior year:</strong></td>
<td></td>
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<table>
<thead>
<tr>
<th>The Honors Program</th>
<th></th>
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<tbody>
<tr>
<td>Open to seniors with a grade-point average of at least 3.0 overall and a 2.2 in microbiology courses, the Honors Program in Microbiology involves taking 20 semester hours of the work in microbiology, including the semester hours in 61171-172 Honors Microbiology. These two courses constitute an introduction to experimental research. At the end of the research, the student presents a written report. There is also an Honors examination. A student successfully completing these requirements receives the B.S. degree with honors.</td>
<td></td>
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<table>
<thead>
<tr>
<th>Graduate Study, Faculty</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Roster, Courses</td>
<td>See &quot;College of Medicine.&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Military Science</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(Army Reserve Officers Training Corps)</td>
<td></td>
</tr>
<tr>
<td>Department head: Lieutenant Colonel Carl J. Heald Faculty: professors Carl J. Heald (Military Colonel) assistant professors Don E. Miller (Calhoun) and Don E. Ireland (Calhoun)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Programs</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>The policies of the Army Reserve Officers Training Corps (HCTC) program is to train female and male college students to become Army officers. Graduates receive second lieutenant's commissions. Participation is voluntary. The program administered by the Department of Military Science, which is an academic department of the University, offers credits applicable toward any degree awarded by the College of Liberal Arts. The Basic Course taken over the freshman and sophomore years, provides instruction in the fundamentals of leadership development and military skills. Emphasis is placed on improvement in outdoor and physical activities. Enrollments in the Basic Course involves no service obligation. Students demonstrating officer potential are selected for the Advanced Course, taken over the junior and senior years and including advanced leadership, military administration and management training, instruction in the theory and dynamics of</td>
<td></td>
</tr>
</tbody>
</table>
military operations, military staff procedures, and military law.

Students who have not taken the Basic Course may qualify for the Advanced Course by attending a paid six-week summer training camp or by enrolling for a summer, on-campus Military Science course. Certain veterans may also be eligible for immediate entry into the Advanced Course.

Cadets attend a six-week paid advanced training camp at Fort Lewis, Washington, where the junior and senior years. Selected cadets may also participate in U.S. Army Ranger and Airborne training.

Credit For Prior Training

Students who have had military instruction elsewhere may receive credit for comparable coursework at Iowa. All students with prior military experience should contact the Department to gain ROTC credit toward a commission.

Although the full Army ROTC program normally spans four years, it can be completed in two, three, or four and a half years, with departmental approval.

Graduate School

Students commissioned as lieutenants upon graduation from Iowa may apply for a delay of entry on active duty to attend graduate school. No additional time is required on active duty for such delays. Delays up to three years to extend medical, dental, and law school are normally accepted.

Financial Aid

ROTC scholarships, prudence tuition, books, laboratory fees, and a $100 per month tax-free subsistence allowance, are available to high school seniors and students enrolled in Military Science courses. All cadets in the Advanced Course receive a $100 per month tax-free subsistence allowance. Cadets attending summer camps and Ranger and Airborne training 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 GI Bill benefits to which they are entitled.

Service Obligations

Completion of the Advanced Course entitles a student to a commission. Compensations, including an Army officer or approximately 60 days of active duty, is required for service in an Army Reserve or National Guard unit in the active duty for training (ADT) program or in the Army National Guard. All cadets who receive a ROTC scholarship accept a four-year service commitment.

Special Programs

The Pershing Rifles and Black Barons are fraternal organizations engaging in intercollegiate military competitions and service activities. The Cadets run an auxiliary to Pershing Rifles and members participate in cadets in many activities. The Department also sponsors a small-bore rifle team which engages in national competition. Cadets compete for individual local and national awards for leadership, academic achievement, athletics, and military proficiency. The Department organizes military-oriented ceremonial and social activities throughout the year, including the annual Military Ball, an awards ceremony, and several minor and picnics.

Special Facilities

The Department utilizes several areas near Iowa City for practical training problems and military skills instruction. It uses a variety of military equipment, such as helicopter and ground radio equipment, and serves as a special interest club. The course also includes a drill program.

Courses

2300 Problem in Military Staff

1.2.b.

Students select courses and activities which include the Staff, Field, and Air functions. The course includes classroom instruction and physical conditioning, adventur training, survival training, and field exercises. An individual, course staff, or field exercise will be conducted.

2301 Problems in Military Skills

1.2.b.

Completion of 2300. Credit applies to College of Liberal Arts physical skills requirements.

2302 Problems in Military Skills

1.2.b.

Students select courses and activities which include the three military skills.
elective college work, counting as credit toward the B.A. or B.S. degree. All graduate work, museum courses may be credited as a full minor concentration on a master's, Degree in Anthropology or Science Education, or the Ph.D. degree in Science Education. Inquiries regarding program enrollment should be directed to the appropriate major department.

Techniques presented in the Museum Laboratory are of value not only to those intending to pursue museum careers, but also to preclinical, geology, zoology and anthropology students. Advanced museum students are offered the opportunity to gain practical work experience by participating directly in the Museum of Natural History exhibit program.

Courses

2419 Museum Techniques 1-2 s.h.
Credit for the laboratory portion of the course may be applied toward the major field of study.

2310 Museum Techniques 1-2 s.h.
Course of study in the laboratory portion of the course may be applied toward the major field of study.

2419 Museum Animation 1-2 s.h.
Techniques used in preparation for museum exhibits are covered in the laboratory portion of the course. Credit for the laboratory portion of the course may be applied toward the major field of study.

2419 Principles of Exhibit Design and Design 2 s.h.
A limited study of principles and design concepts employed in planning and execution of exhibits. Credit for the course may be applied toward the major field of study.

2419 Special Problems and Projects 1-2 s.h.
Projects related to research problems or independent study are subject to the approval of the instructor and the administration. Credit for the course may be applied toward the major field of study.

2419 Special Reading and Projects 1-2 s.h.
Readings selected from courses and independent study are subject to the approval of the instructor and the administration. Credit for the course may be applied toward the major field of study.

2419 Undergraduate Program 1-2 s.h.
The School offers two undergraduate degree programs: the Bachelor of Arts degree in Music and the Bachelor of Music degree. Credit for the course may be applied toward the major field of study.

General Requirements

All undergraduate enrollments must receive the approval of the Undergraduate Program Committee. Approval of all students must be received before enrollment in the University of Iowa. Credit for the course may be applied toward the major field of study.
Music Education

Areas of concentration in music education are instrumental music, vocal music, music therapy. In addition to the B.A. or B.M. requirements in music and liberal arts, certification to teach music in Iowa schools requires satisfactory completion of specific requirements in the area of concentration. Requirements in the instrumental and vocal areas are listed below.

String Majors

Inversion in performance 5 s.h.
Kodaly (inertion in performance) 1 s.h.
25:103 Class Strings 2 s.h.
(Violinists take viola and bass; violists take violin and bass; cellists take viola and cello.)
75:143 Electroacoustic Techniques 2 s.h.
(normally clarinet and trombone)
25:107 Instrumental Conducting 1 s.h.
75:108 Instrumental Conducting II 1 s.h.
75:150 String Methods and Materials 3-4 s.h.

Music Therapy

Admission to the program in music therapy is based on (a) satisfactory minimum keyboard skills and (b) successful completion of the introductory courses in music therapy (25:114). The number of students admitted to the program is limited by the time and amount of clinical experience available on campus. In addition to the specific courses in music therapy listed below, specific courses are required in psychology, abnormal psychology, and social psychology. A six-month
internship in an approved off-campus clinical facility is required before the completion of the degree and certification as a registered music therapist (RMFT). For greater job opportunities, students also are strongly encouraged to complete the music teacher certification requirements. Complete information on the program is available in the music education office. Course requirements:

25:93 Recreational Music, 2 s.h.
25:114 Orientation to Music Therapy, 2 s.h.
75:144 Psychology of Music I, 2 s.h.
75:148 Laboratory: Psychology of Music, 2 s.h.
25:138 Influence of Music on Behavior, 2 s.h.
25:199 Principles and Procedures in Music Therapy, 2 s.h.
25:149 Internship in Music Therapy, 2 s.h.

Composition/Theory Major

Students are not admitted to this program earlier than the sophomore year. Upon application for admission to the program, the candidate shall be assigned a committee of three faculty members. In consultation with whom a course of study leading to the degree shall be determined. Admission is based on an evaluation of original compositions submitted to an admission and advisory committee, achievement in theory and composition courses, and keyboard competence, tested by an examination including sight reading (Bach chorales) and performance (Bach invention or work of comparable difficulty).

Course requirements:

25:1-2 Literature and Theory I-II, 6 s.h.
25:3-4 Aural Skills I-II, 6 s.h.
25:5-6 Literature and Theory III-IV, 6 s.h.
25:7-8 Aural Skills III-IV, 6 s.h.
25:91-92 History of Music I-II, 6 s.h.

Thesis Requirement

The thesis replaces the senior recital required of applied music majors, and consists of one or more original compositions, approved by the student's advisory committee and performed in regularly scheduled School of Music recitals, and/or a committee-approved scholarly paper dealing with theoretical issues.

Applied Music Requirement

Until admitted to the program, the student must take private lessons on his or her major instrument or voice. Following admission, the student undertakes applied music study as recommended by the advisory committee.

Ensemble Requirement

The candidate participates in an approved ensemble for four years.

Honors

A student with junior or senior standing may apply to take Honors work in music with the approval of the director of the College of Liberal Arts Honors program, provided a School of Music faculty member sponsors the student in Honors status and the student has maintained a minimum grade-point average of 3.0 on all previous work undertaken at the University. A student maintaining the minimum 3.0 average qualifies for graduation with Honors by completing 29-35 credits in Music. Types of Honors projects for which credit is given in 25:97 are Honors performances, solo and/or ensemble, Honors compositions, orchestrations, arrangements, and Honors essays, research papers, editorials, translations, etc.

A combination of at least two of these types of projects is required. None of the projects may duplicate projects assigned in other courses or required for graduation, such as 25:144 Senior Recital. Honors students in music are encouraged to take graduate-level courses. Advanced coursework in music history, music theory, and languages is particularly recommended. As Honors committee of at least three members is appointed by the Honors sponsor to evaluate the student's work.

Financial Aid

A number of Music Activity Scholarships are available to qualified undergraduate music majors. For information write the School of Music.

Graduate Programs

The entering principle student must take the School of Music candidacy examination in music theory (harmony, ear training, forms and counterpoint), and history and literature, before his or her first registration. The advisory examination is given within the first two days (excluding Sunday) before Registration. A list of the general content of these tests may be obtained from the Doctor's Office, School of Music. (For general graduate admission, degree and examination requirements, see the "Graduate College" section of the Catalog.)

Master of Arts

The Master of Arts with thesis is offered in the areas of performance (including conducting), composition, music theory, and music history and literature. The Master of Arts without thesis is offered in the areas of music education and instrumental or vocal pedagogy (including accompanying). Both require a minimum of 36 post-baccalaureate semester hours. Information about specific admission and curriculum requirements for each are available from the School of Music. All curricula must include:

General

45:521 Introduction to Graduate Study in Music, 2 s.h.
25:145 Counterpoint Forms, 3 s.h.
25:147 Tonal Forms, 3 s.h.
One elective in Analysis of Music Literature (25:119 or equivalent)

If the student fails to complete 25:145 or 25:147 as a result of the advisory examination, the student must take the other one and the Analysis of Music Literature elective. If the student fails both 25:145 and 25:147, the student needs to take only the Analysis of Music Literature elective. Any serious music theory and ear training deficiencies revealed in the advisory examination are to be removed through 25:119 Theory Review.

Music History

25:301-302 Advanced History and Literature of Music I-II, 6 s.h. or equivalent, or satisfactory advisory examination score.

If the student fails to complete 25:301 and 302 as a result of the advisory examination, the
Student should select another course from the music history sequence 25:303-314, 25:318-319, 25:325, 25:330-332 and other musicology courses may be elected in special cases, with permission of the musicology advisor.

**Ensemble Participation**
25:185 University Choir or Kantorei
25:191 Symphonic Choir
25:192 Orchestra
25:194 Symphony Band, Wind Ensemble, Concert Band

Keyboard majors may substitute accompaniment participation in a large ensemble, at their advisor's discretion. Theory, composition, musicology and music education majors may, with their advisor's permission, substitute other ensembles. Vocal majors, with their advisor's permission, may be excused from participation in large vocal ensembles during the period in which they are singing major roles in operas or theater. Any requests for adjustment of this requirement must be submitted to a reviewing committee.

**Electives**
Suitable courses in the student's area of concentration.

**Admission**
Before an applicant will be considered for admission, he or she must have submitted supporting materials to the Director of Music or her designated area of concentration, as follows:
- Composition—representative musical scores
- Theory—analyses or commentaries on musical works
- Music Education—materials required for performance (including conducting)—audition
- Music History and Musicology—research papers
- 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 the areas of composition, instrumental or choral 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 Arts degree, the student must also present at least two full-length recitals or programs (25:401 M.F.A. Thesis), for which a maximum of eight semester hours of credit will be granted. The student may write a Master of Arts degree while working toward the Master of Fine Arts degree, but all requirements for each degree must be met separately, including two final examinations, with a minimum combined total of 60 semester hours of graduate credit. (See the "Graduate College" edition of the Catalog for further details.)

**Doctoral Degrees**

**General Requirements**
All doctoral study in music involves:

- Minimum course requirements listed under the M.A. degree
- One or more additional courses from the analytical studies sequence 25:146-152 or equivalent

One or more additional courses in the music history/musicoology sequence indicated in the master's degree requirements 25:395 Physics of Sound and Music or equivalent

Reading 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**

All doctoral students must be available for participation in a large ensemble 25:236 Opera Theater; 25:325 University Choir; 25:191 Symphonic Choir; 25:192 Orchestra; 25:194 Symphony Band, Wind Ensemble, Concert Band during each term of registration unless excused by their advisor. Keyboard majors may substitute accompaniment in place of participation in a large ensemble, at the discretion of their advisor.

**Doctor of Philosophy**
Areas of concentration involve composition, music history and musicology, music education, music theory and music literature.

The music theory program is designed for students who have already achieved a professional level of musical performance and who wish to broaden their background by advanced study in music literature. An audition in the major performance area is a prerequisite.

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 concert performance with orchestra or another appropriate ensemble. Viva voce may substitute the execution of one or more major roles in a large-scale work for one of their recitals. Conductors will present two programs.

D.M.A. candidates must also give evidence of their ability to make a scholarly investigation of a unified scope by means of a written essay.

**Admission**
Before an applicant will be considered for admission to a doctoral program, he or she must have submitted supporting materials in his or her indicated area of concentration, as follows:

- Composition—representative musical scores
- Theory—analyses or commentaries on musical works
- Music Education—research papers
- Music Literature—research papers and audition
- Performance (including conducting)—audition
- Music History and Musicology—research papers

**Graduate Awards**
Qualified graduate students are invited to apply for teaching and assistantships. Inquiries should be directed to the School of Music.

**Opportunities for Performance**
The following organizations provide many performing opportunities for qualified students:

- Camerata Singers
- Old Gold Singers
- Kantorei
Facilities
With completion of the new Music Building (1971) and expansion Hanover Auditorium (1972), 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 practice rooms, a large library, two electronic music laboratories, soundproof ear-training and listening laboratories, 60 listening posts, four large rehearsal halls, ample solo and ensemble practice facilities, professional recording facilities, sight-practice and vocal rooms, and the 725-seat Clapp Recital Hall. Hanover Auditorium seats 2,680 people for concerts, 2,400 for concerts and other stage productions.

Library resources include more than 50,000 volumes of music and more—increasing at the rate of approximately 2,000 a year—and more than 2,100 titles of microfilm, a microcard file of approximately 300 titles, nearly 5,000 l.P.s, and 175 periodicals in several languages. The acquisition program gives particular attention to a strong reference collection, emphasizing resources for musical research and performance. The library’s patrons in the Music Building provide 4 study carrels, a microcard room, a typing room, a seminar and rare books room, a large reading area, and a separate area for the Golden Man Library, one of the world’s most famous collections of hand music.

Courses

Primary for Undergraduates

Theory and Composition

25.1 Literature and Theory I 3 h.
(need, writing, and critical museums, rudiments of style and fundamentals of harmony. Complements 25.5.)

25.3 Literature and Theory II 3 h.
(Continuation of 25.1, composition.)(204.)

25.5 Avail Wills I 1 h.

25.6 Avail Wills II 1 h.

25.7 Literature and Theory III 3 h.
( Harmony, counterpoint, and formal analysis from 17th century to present. Prerequisite: 25.5.)(205.)

25.8 Literature and Theory IV 3 h.
(Continuation of 25.5, whereas improves. Complement: 206.)

25.7 Avail Wills III 1 h.

25.7 Avail Wills IV 1 h.

25.10 Fundamentals of Music 3 h.
Musical notation; elementary meters; rhythm; and harmonic theory; basic vocal skills; for students who have no previous experience. Not open to music majors.

25.11 Rhythm Theory 3 h.

25.13 Undergraduate Composition 2 h.
Prerequisites: 25.5.

History and Research

35.33 Theological Attendance 9 h.

35.31 History of Music I 3 h.
Prerequisites: music majors, 25.5 and all 251s for the equivalent nonmajors, consent of instructor.

35.32 History of Music II 2 h.
(Continuation of 35.3.)

35.33 Research in Music 3 h.
(Research in independent music. Prerequisite: same as for 35.31.)

35.34 Seminar in Music 1 h.

Courses for Undergraduates and Graduates

Music Education

where such numbers are included, students preparing for Music Teacher Certificates should register under education number.

35.71 Group Instruction in Flute 3 h.
Beginning instruction for music majors whose principal performing medium is voice or instrumental. Major Instrument study includes development of skills in sight-reading, aural training, improvisation, introspection, and performance.

35.72 Group Instruction in Flute I 2 h.
Advisory to early intermediate instruction for music majors whose principal performing medium is voice or an orchestral or band instrument. (Continuation of 35.72.) Introduction of easy solo and ensemble literature. Prerequisites: 35.71 or successful proficiency examination.

35.76 Preparatory Music Textbooks 2 h.
Uses of music in group recreational activities. emphasis on musical accomplishment and leadership techniques.

35.83 Class Shaping 3 h.
(General music for upper majors for study of a secondary major instrument.)

35.10 Classroom Techniques 3 h.
(Instruction in the actual classroom realities and techniques of teaching, including practice in conducting and physiology of the voice. Prerequisites: 35.10 or consent of instructor.)

35.100 Classroom Techniques 3 h.
(Instruction in the actual classroom realities and techniques of teaching, including practice in conducting and physiology of the voice. Prerequisites: 35.10 or consent of instructor.)

35.111 Classroom Techniques 2 h.

35.112 Group Workshops and Materials 3 h.

35.113 Materials of Teaching Piano 1 h.

35.114 Conducting to Music Therapy 2 h.

35.115 Special Freedman experience designed to provide (a) an

Special Programs

The Center for New Music provides an environment for innovative composition and a vehicle for the performance of new works. Its repertory includes the works of little-known young composers and works using electronic sounds, as well as compositions by recognized modern composers.

The Center for the New Performing Arts is an interdisciplinary unit linking the University’s schools of Music and Art and its Film, Theater, and Creative Writing areas. The Center aims to encourage talented young artists to develop their creative skills through multimedia and interdisciplinary classes, projects and performances.

Music for Nonmajors

Students who are not majoring in music but have an avocational interest in it may find 25-150 Late 18th- and 19th-Century Composers. 25-190 Early 18th- and 20th-Century Composers or 25-59-40 Masterpieces of Music helpful in acquainting them with music as listeners. 25-230-251 World Music I-II is available for students interested in non-Western music. 25-15 Fundamentals of Music is for nonmajors who have little or no experience with notation, theory, and oral skills. With the instructor’s approval, nonmajors may take an elementary background in music. But register for 25-1-2 Literature and Theory I-II. Nonmajors interested in performance should consult music advisors regarding appropriate course work in applied music (solo and ensemble).
oration to various therapeutic careers, and (3) self-appraisal of the personal qualities needed in the therapeutic setting.

21:110 Studies in Dreams I 2 s.h.

21:113 Studies in Dreams II 2 s.h.

21:115 Arranging for Radio 2 s.h.

21:138 Influence of Music on Behavior 2 s.h.

Review of the theoretical bases and experimental evidence of the influence of music on human behavior. Prerequisite: 21:110 or 21:115 or approval of instructor.

21:139 Principles and Procedures in Music Therapy 2 s.h.

Prerequisites for the use of music in clinical settings, with specific emphasis on the patient or client in the setting. Prerequisite: 21:138, approval of instructor.

21:140 Internship in Music Therapy 2 s.h.

A six-month period of clinical training in an approved music therapy program under the direction of a registered music therapist.

21:140 Seminar: Percussion, Melodica, Tuning Forks, Performance Practices 1 s.h.

Contemporary techniques in literature and current styles, essential techniques of performance and composition. Prerequisite: consent of instructor.

21:150 Fundamentals of Music 3 s.h.

21:150 Advanced Conducting 3 s.h.

Preliminary conducting skills.

21:211 Advanced String Methods and Literature 3 s.h.

Advanced pedagogy for orchestral string instruments. Open to undergraduates with consent of instructor.

21:214 Reading Techniques 3 s.h.

Prerequisite: consent of instructor.

21:271 Special Studies in Music Therapy 2-3 s.h.

Industrial placement on special problems in music therapy. May be repeated for credit. Prerequisite: consent of instructor.

Theory and Composition

21:108 History of Music Since 1850 3 s.h.

21:161 Counterpoint I 3 s.h.

Writing and analysis. Prerequisite: 21:21, 21:11 or equivalent.

21:162 20th-Century Harmony and Counterpoint 3 s.h.

Lecture and writing. Prerequisite: 21:55 or 21:11 or equivalent.

21:167 Tonal Forms 3 s.h.

Prerequisite: 21:21 or 21:11 or equivalent.

21:168 Analytical Music Literature, 1600-1750 3 s.h.

21:168 Material in the Benedictine, Romantic and imperial period. Prerequisite: 21:21 or equivalent.

21:190 Analytical Music Literature, 1825-1900 3 s.h.

21:190 Analytical Music Literature, 1825-1900 3 s.h.

21:21 Analytical Music Literature, 1825-1900 3 s.h.

21:21 History of Organ Building and Design 3 s.h.

Development of organ building. History of action and all stages from Renaissance to present. Open to graduate students and others by consent of instructor. May be repeated for credit. Offered alternate years: even numbered.

21:22 Organ Improvisations and Liturgies I 3 s.h.

Improvisation of short two- and three-part hymns. Hymnody, historical and contemporary. May be repeated for credit. Offered in alternate years. Fall semester: offered 1970-79.

21:22 Organ Improvisations and Liturgies II 3 s.h.

May be repeated for credit. Offered in alternate years: fall 1977-78.

21:23 Organ Literature and Improvisations 2 s.h.

Survey of organ literature from 18th to the present. Offered 1978-90. Open to advanced graduate and graduate students. May be repeated for credit.

21:24 World Music I 3 s.h.

Introduction to the music of the indigenous peoples of sub-Saharan Africa, the Americas, Australia and Oceania. Open to undergraduate majors and nonmajors.

21:25 World Music II 3 s.h.

Music styles of India, China, Korea, Japan, Indonesia, Iran and the Arab countries. Open to undergraduate majors and nonmajors.

21:25 Visual Literature 3 s.h.

21:31 Orchestral Literature 3 s.h.

21:22 Piano Literature 3 s.h.

21:22 String Literature 3 s.h.

21:25 Wind Instrumental Literature 3 s.h.

21:25 Physics of Sound and Music 3 s.h.

Jazz Studies

21:161 Jazz Improvisation I 2 s.h.

21:16 Jazz Improvisation II 2 s.h.

21:162 Jazz Composition I 2 s.h.

21:163 Jazz Composition II 2 s.h.

21:164 Jazz Pedagogy 3 s.h.

Study of principles of jazz teaching through examination of pedagogical and instructional approaches for beginning and advanced levels. Offered alternate years: offered 1979-78.

21:165 Special Studies 3 s.h.

21:168 Biblical Interpretations in Oratorio and Opera 3 s.h.

21:218 Interdisciplinary course in music and religious chronologies and aesthetic and comparative study of biblical literature and opera from the biblical periods to the present. Special emphasis to the manner in which biblical literature and opera influence the biblical text, and the historical context that has influenced these interpretations. Same as 21:165, 21:171, 21:172, 21:197, 21:218.

21:216 Interpretations of Sacred Art Song 3 s.h.

21:217 Interpretations of Sacred Music in Islam 3 s.h.

21:218 Interpretations of Non-Sacred Art Song 3 s.h.

21:219 Interpretations of Non-Sacred Music in Islam 3 s.h.

21:219 Advanced Conducting 3 s.h.

Prerequisite: consent of instructor.

21:220 Advanced Conducting II 3 s.h.

Prerequisite: consent of instructor.

21:231 History of Organ Building and Design 3 s.h.

Development of organ building. History of action and all stages from Renaissance to present. Open to graduate students and others by consent of instructor. May be repeated for credit. Offered alternate years: even numbered.

21:232 Organ Improvisations and Liturgies I 3 s.h.

Improvisation of short two- and three-part hymns. Hymnody, historical and contemporary. May be repeated for credit. Offered in alternate years. Fall semester: offered 1970-79.

21:233 Organ Improvisations and Liturgies II 3 s.h.

May be repeated for credit. Offered in alternate years: fall 1977-78.

21:236 Organ Literature and Improvisations 2 s.h.

Survey of organ literature from 18th to the present. Offered 1978-90. Open to advanced music students. Open to advanced undergraduate and graduate students. May be repeated for credit.

21:238 World Music I 3 s.h.

Introduction to the music of the indigenous peoples of sub-Saharan Africa, the Americas, Australia and Oceania. Open to undergraduate majors and nonmajors.

21:239 World Music II 3 s.h.

Music styles of India, China, Korea, Japan, Indonesia, Iran and the Arab countries. Open to undergraduate majors and nonmajors.

21:25 Visual Literature 3 s.h.

21:31 Orchestral Literature 3 s.h.

21:22 Piano Literature 3 s.h.

21:22 String Literature 3 s.h.

21:25 Wind Instrumental Literature 3 s.h.

21:25 Physics of Sound and Music 3 s.h.

Courses Primarily for Graduates

Music Education

21:25 Band; Band Problems 3 s.h.

21:25 Methods of Teaching Music 3 s.h.

21:25 Advanced Conducting I 3 s.h.

Courses works from the Renaissance. Prerequisite: 21:165.

21:25 Advanced Conducting II 3 s.h.

Courses works from the Renaissance. Prerequisite: 21:165.
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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>25:24</td>
<td>String Bass</td>
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<td>25:25</td>
<td>Flute</td>
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<td>Oboe</td>
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<td>Clarinet</td>
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<td>Saxophone</td>
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<td>25:29</td>
<td>Saxophone</td>
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<td>25:36</td>
<td>French horn</td>
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<td>Double Bass</td>
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<td>25:197</td>
<td>French horn</td>
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<td>25:144</td>
<td>Solo Reels</td>
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<td>25:145</td>
<td>Irish Dance Songs</td>
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<td>25:146</td>
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<td>25:147</td>
<td>Chevrolet Orchestra</td>
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<td>25:148</td>
<td>Plate Arrangement</td>
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<td>25:149</td>
<td>Piano Chamber Music</td>
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<td>25:150</td>
<td>String Chamber Music</td>
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<td>25:151</td>
<td>Vocal Chamber Music</td>
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**Nuclear Medicine Technology**

- See "College of Medicine."

**Nuclear Science and Technology**

- See "College of Medicine."

**Philosophy**

- Department chair: Land Adams
- Faculty: Professor Land Adams, Mrs. Shadrack, Penney Washburn, Philip Curnett, Robert S. Ogle
- Professor emeritus: Susan Reynolds
- Associate professor: James DuValing
- Assistant professor: Evan Evans, Richard Fuston, John Tamils

**Undergraduate Program**

The undergraduate program in philosophy provides knowledge of the basic issues and the main developments in Western philosophy, and strengthens logical skills which are useful in a wide variety of fields. A major in philosophy can provide preparation for the advanced studies necessary for a career in religion or law, for example, as well as for positions in government and business which require a general education and a capacity for clear and systematic thinking. Advanced degree work is necessary for college teaching positions in philosophy.

Undergraduate majors are required to take at least 27 semester hours of courses numbered from 26:101 to 26:199, including:

- 26:103 Introduction to Logic
Courses

Undergraduates Only

20:11 Philosophy of Literature 3.0
Philosophical study of the literary tradition
20:12 Existentialist Philosophy 3.0
Existentialism as a philosophy of human life
20:13 Loneliness 3.0
Loneliness as a philosophical concept
20:14 Knowledge 3.0
Knowledge as a philosophical concept
20:15 Time 3.0
Time as a philosophical concept
20:16 Being and Essence 3.0
Being and Essence in philosophy
20:17 Language and Communication 3.0
Language and Communication in philosophy
20:18 Art and Aesthetics 3.0
Art and Aesthetics in philosophy
20:19 Ethics 3.0
Ethics as a philosophical concept
20:20 Politics 3.0
Politics as a philosophical concept
20:21 History of Philosophy 3.0
History of Philosophy as a philosophical concept
20:22 Philosophy of Science 3.0
Philosophy of Science as a philosophical concept
20:23 Philosophy of Religion 3.0
Philosophy of Religion as a philosophical concept
20:24 Philosophy of Mind 3.0
Philosophy of Mind as a philosophical concept
20:25 Philosophy of Language 3.0
Philosophy of Language as a philosophical concept
20:26 Philosophy of Mind and Matter 3.0
Philosophy of Mind and Matter as a philosophical concept
20:27 Philosophy of Science 3.0
Philosophy of Science as a philosophical concept
20:28 Philosophy of Religion 3.0
Philosophy of Religion as a philosophical concept
20:29 Philosophy of Art 3.0
Philosophy of Art as a philosophical concept
20:30 Philosophy of Language 3.0
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Philosophy of Art as a philosophical concept
20:99 Philosophy of Mind 3.0
Philosophy of Mind as a philosophical concept
20:100 Philosophy of Science 3.0
Philosophy of Science as a philosophical concept
20:101 Philosophy of Religion 3.0
Philosophy of Religion as a philosophical concept

Honors Program

The Department administers an Honors program for undergraduate majors of superior ability. To be eligible for the program, a student must have a cumulative grade-point average of at least 3.0. An individualized Honors program is developed by the student in consultation with his or her adviser in the Department. A student eligible for and interested in the program should consult with his or her adviser as early as possible, preferably in the sophomore year.

Graduate Program

The graduate program in philosophy is designed to train future teachers and scholars in philosophy. The main areas in the graduate curriculum are metaphysics and 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 passing, at a high level of performance, courses in metaphysics and epistemology, history of philosophy, logic and philosophy of science, and ethics. In addition, the student must pass an oral final examination. There is no foreign language requirement.

Doctor of Philosophy

Candidacy for the doctoral program is formally determined by a vote of the faculty, usually after the completion of three semesters of graduate study. Requirements include passing, at a high level of performance, courses in metaphysics and epistemology, history of philosophy, logic and philosophy of science, and ethics. In addition, the student must pass a written comprehensive examination consisting of a dissertation and an examination, a special area examination and a prospectus of the dissertation. Before taking the comprehensive examination, the student must show competence in French, German, Greek or Latin. The fourth year of graduate study is ordinarily spent in writing the doctoral dissertation.
25:109 Kent Hall
3 a.h.
Analysis of main themes and major topics of Kants ethics and aesthetic. Prerequisite: 25:113 or consent of instructor.

25:117 Fields, Schelling, Hegel
3 a.h.
Analytical approach to Hegel and major trends. Prerequisite: 25:113 or consent of instructor.

25:118 Kant and Religion
3 a.h.
Analysis of main ideas and major texts. Prerequisite: 25:113 or consent of instructor.

25:120 Mitteleuropa
3 a.h.
Analysis of main ideas and major texts. Prerequisite: 25:115 or consent of instructor.

25:190 History of Philosophy
1 a.m.
May be repeated to a maximum of 8 a.m.

Primarily for Graduates

25:201 Mathematical Logic
3 a.h.
Main themes and techniques of mathematical logic. Open to undergraduates with consent of instructor.

25:202 Philosophical Problems of the Social Sciences
3 a.h.
Examination and understanding, theories and recent thought, values and ideas, history and causality. Open to undergraduates with consent of instructor. Same as 25:315.

25:204 Philosophy of Science
3 a.h.
Major topics in the philosophy of science. Open to undergraduates with consent of instructor.

25:211 Seminar: Metaphysics
May be repeated for credit.

25:222 Seminar: Epistemology
May be repeated for credit.

25:223 Seminar: Philosophical Analysis
May be repeated for credit.

25:242 Seminar: Philosophy of Logic
May be repeated for credit.

25:244 Seminar: Philosophy of Science
May be repeated for credit.

25:245 Seminar: Ethics
May be repeated for credit.

25:249 Seminar: Philosophy of History
May be repeated for credit.

25:257 Seminar: History of Philosophy
May be repeated for credit.

25:240 Research, Viva Theory
May be repeated for credit.

25:247 Research: Metaphysics and Epistemology
May be repeated for credit.

25:248 Research: Logic and Philosophy of Science
May be repeated for credit.

25:249 Research: History of Philosophy
May be repeated for credit.

25:267 Thesis
May be repeated for credit.

Physical Education
The University offers instruction in physical education on the west campus (Field House) and on the east campus (Kelley Gymnasium). The Department on the west campus was formerly called the Department of Physical Education for Men and the Department on the east campus, Department of Physical Education for Women.

Physical Education—Field House
Head: Louis E. Alley
Faculty: professors Louis E. Alley, Daniel M. Appel, Donald S. Croation, Charles W. Tappen
associate professors Cyril V. Geoff, Gary F. Hahn, James G. Hay, R. Nathan Hoffer, David K. Lewis, Jerry A. Martin, Charles W. Tappen
instructors David Adamkiewicz, Donald D. Kibb, Danie Galleano, Arthur J. Wandel
assistant professors Robert F. Allen, J. A. Scott Keeler
instructor Hybbi E. Wilson
instructor-in-charge Faye H. Hay
examiners and instructors T. J. Turner, Nancy L. Hugel, Dan M. Galle, James W. Read, Howard G. Olin, Bernard Nygad

Degree offered: B.A., B.S., M.A., Ph.D.

Undergraduate Programs
Preparation for Teaching and Coaching
The Bachelor of Science degree program in teaching and coaching prepares students for teaching physical education and related subjects in elementary and secondary schools, and for coaching athletic teams. Though the recent job shortage in teaching and coaching has led to a high level of competition among applicants for teaching positions, graduates in physical education from this Department have had a high percentage of placement.

Program requirements:
27:11 Introduction to Physical Education 0 a.h.
27:11-20 Teaching of Recreational Sports I-IV 4 a.h.
27:21 Teaching of Gymnastics 2 a.h.
One of these seven coaching courses:
27:22 Coaching of Gymnastics 2 a.h.
27:22 Coaching of Track and Field 2 a.h.
27:22 Coaching of Recreation 2 a.h.
27:34 Coaching of Baseball 2 a.h.
27:34 Coaching of Track and Field 2 a.h.
27:36 Coaching of Basketball 2 a.h.
27:38 Coaching of Competitive Swimming 2 a.h.
27:39 Coaching of Wrestling 2 a.h.
27:37 Teaching of Swimming 2 a.h.
27:33 Human Anatomy 2 a.h.
27:58 First Aid 0 a.h.
27:57 Introduction to Athletic Training 2 a.h.
27:12 Administration of Physical Education and Athletics 2-3 a.h.
27:12-Adapted Physical Education 2 a.h.
27:37 Biomechanics of Physical Education 3 a.h.
27:508 Introduction to Human Perceptual-Motor Performance 3 a.h.
27:141 Elementary Exercise Physiology 2 a.h.
27:13 Introduction to Human Physiology 4 a.h.
35:142 Contemporary Issues of Health Education 3 a.h.

Required for certification in physical education:
76:71-72 Methods and Materials in Elementary School Physical Education 4 a.h.
or
27:20 Social Forms of Dance 1-2 a.h.
75:75 Educational Psychology and Measurement 3 a.h.
75:181 Pre-education Practicum 1 a.h.
75:100 Introduction to Secondary School Teaching 2 a.h.
75:143 Methods in Secondary Physical Education 3 a.h.
75:187 Seminar: Curriculum and Student Teaching 1-3 a.h.
75:190 Individual Projects in Laboratory Practice 1-3 a.h.
75:191 Observation and Laboratory Practice in the Secondary School am.
76:192 Laboratory Practice in Elementary School am.

Predoctoral Program
The predoctoral Bachelor of Arts program, which is open only to students with superior academic records, is designed to prepare students for graduate work in physical education with emphasis on exercise physiology, adapted physical education, motor behavior, biomechanics, and appraisal and evaluation of the curriculum. A core of courses in physical education, and selected courses in mathematics, the biological sciences, and the physical sciences, which are basic to advanced study in the area in which the student is interested. Because the student needs most certification requirements for teaching in the public schools, this curriculum offers considerable latitude in the choice of electives to fit individual interests and needs.

Foundation courses required:
Endorsement for Coaching

The State Department of Public Instruction has provided for the endorsement of certified teachers for the coaching of athletic activities in schools. This endorsement is intended for teachers with majors in subjects other than physical education but who wish to coach interscholastic athletic teams. The endorsement does not permit the teacher to teach physical education classes in the schools.

Certification for coaching athletic teams at the junior high and secondary school levels requires satisfactory completion of the following courses:

27:53 Human Anatomy 2 s.h.
27:56 First Aid 0 s.h.
27:57 Introduction to Athletic Training 2 s.h.
27:103 Administration of Physical Education and Athletics 2-3 s.h.
27:150 Biomechanics of Physical Education 3 s.h.
27:108 Introduction to Human Perception-Motor Performance 3 s.h.
27:141 Elementary Exercise Physiology 2 s.h.

Endorsement for Athletic Trainers

This endorsement is provided for students who want to be certified as trainers for athletic teams at either the secondary school level as a part of their regular teaching 6-12th or the college and university level. The courses required are designed to meet the standards for certification by the National Athletic Trainers Association and include:

17:1 Food Nutrition and Men or
17:142 Nutrition 3 s.h.
21:1 Elementary Psychology 4 s.h.
7:75 Educational Psychology and Measurement 3 s.h.
7:12 Introduction to Human Physiology 4 s.h.
28:142 Contemporary Issues of Health Education 3 s.h.
27:53 Human Anatomy 2 s.h.
27:58 First Aid 0 s.h.
27:57 Introduction to Athletic Training 2 s.h.
27:105 Adapted Physical Education 2 s.h.
27:107 Biomechanics of Physical Education 3 s.h.
27:141 Elementary Exercise Physiology 2 s.h.
27:171 Medical Supervision of Athletics 2 s.h.
27:182 Evaluation Techniques in Athletic Training 2 s.h.
47:183 Athletic Training Modalities and Therapeutics 2 s.h.
27:164 Laboratory Practice in Athletic Training 2 s.h.

Pre-Physical Therapy Program

The pre-physical therapy program capitalizes on a unique jurisdiction of resources at Iowa. Within a tile-block radius are located the Field House (which houses this Department), the College of Medicine, the University Hospitals, the Veterans Hospital, the Psychiatric Hospital and the University Hospital School for handicapped and mentally retarded children.

The proximity of these facilities, together with the close working relationship between the faculty of this Department and the faculties of various departments in the College of Medicine, offer an ideal setting for a pre-physical therapy program. Because there is a rapidly increasing demand for physical therapists who are willing to serve as athletic trainers for school, college, and university teams, the pre-physical therapy program in physical education renders a valuable service to schools and colleges, as well as to the paramedical aspects of physical therapy.

Students who wish to complete the requirements for admission to the training program in physical therapy must complete the following courses:

27:21-22 Teaching of Recreational Sports I-II 4 s.h.
27:31 Teaching of Gymnastics 2 s.h.
27:32 Teaching of Swimming 2 s.h.
27:53 Human Anatomy 2 s.h.
27:56 First Aid 0 s.h.
27:37 Introduction to Athletic Training 2 s.h.
27:38-39 Practicum in Special Physical Education 6 s.h.
27:103 Administration of Physical Education and Athletics 2 s.h.
27:105 Adapted Physical Education 2 s.h.
27:107 Biomechanics of Physical Education 3 s.h.
27:108 Introduction to Human Perceptual-Motor Performance 3 s.h.
27:141 Elementary Exercise Physiology 2 s.h.
27:153 Advanced Anatomy and Kinesiology 2-3, 5 s.h.
46:14 Principles of Chemistry-I-II 5 s.h.
4:16 Elementary Chemistry Laboratory I 2 s.h.
7:75 Educational Psychology and Measurement 3 s.h.
29:11-12 College Physics 8 s.h.
31:1 Elementary Psychology 4 s.h.
31:13 Psychology of Adjustment and Development 3 s.h.
31:143 Abnormal Psychology 3 s.h.
37:2 Principles of Animal Biology 5 s.h.
37:81 Principles of Human Genetics 4 s.h.
37:103 Comparative Vertebrate Anatomy 4 s.h.
27:102 Contemporary Issues or Health Education 0 s.h.
27:13 Introduction to Human Physiology 4 s.h.
A course in mathematics
Graduate Programs

M.A. without Thesis

The program leading to the M.A. degree without thesis is designed as a terminal unit of advanced study for teachers of basic physical education and for athletics coaches. Emphasis is placed on the application of research findings to the organization, teaching and evaluation of basic physical education programs for all students in schools and colleges, and to the coaching of interscholastic and intercollegiate athletic teams. Particular attention is given to problems associated with teaching and coaching in public schools and community colleges in Iowa. The placement of graduates with the M.A. degree without thesis has been excellent.

Undergraduate Prerequisites

The undergraduate coursework listed below is required. Any or all of this coursework may be taken after the student has been admitted to graduate study, but it should be taken at the earliest opportunity.

- Human anatomy (2 s.h.)
- Human physiology (3 s.h.)
- Physical hygiene (or equivalent) (2 s.h.)
- Administration of physical education and athletics (2 s.h.)
- Methods in physical education (2 s.h.)
- Practice teaching (or equivalent) (3 s.h.)
- Teaching of gymnastics (1 s.h.)
- Teaching of swimming (1 s.h.)
- Coaching (1 s.h.)
- Electives in physical education and related fields (13 s.h.)

Total (30 s.h.)

Credit may be given for experience and competence in techniques when such competence is demonstrated by examination.

Graduate requirements

For the M.A. degree without thesis, the student must complete a minimum of 30 semester hours, at least 24 of which must be in physical education, including 27-321 Non-math Seminar. At least one course must be selected from each of these three groups:

Group I

- 27-105 Adapted Physical Education (2 s.h.)
  (may or may not be elected if student has completed equivalent course in undergraduate study)
- 27-167 Measurement and Evaluation in Physical Education (3 s.h.)

Group II

- 27-342 Supervision of Physical Education (3 s.h.)
- 27-257 Public School Curriculum in Physical Education (3 s.h.)
- 27-350 Human Perceptual-Motor Performance (3-4 s.h.)

Group III

- 27-157 Biomechanics of Athletics (3 s.h.)
- 27-241 Scientific Principles of Physical Conditioning (3 s.h.)

M.A. with Thesis

The study program leading to the M.A. with thesis is designed primarily as a first step in a program of graduate study leading to the Ph.D. degree. There is particular emphasis upon techniques of research as applied to problems related to physical education and athletics. A secondary purpose of this program is to provide advanced preparation for those who are teaching, or intend to teach, in programs for undergraduate majors in physical education in four-year colleges, but who do not plan to continue on to the doctorate. An attempt is made to thoroughly acquaint candidates with the nature and extent of research in all areas of physical education and to provide some degree of specialization in an area of particular interest to the student.

Undergraduate Prerequisites

The undergraduate coursework listed below is required. Any or all of it may be taken after the student has been admitted to graduate study in physical education, but it should be taken at the earliest opportunity.

- Adapted physical education (2 s.h.)
- Human physiology (3 s.h.)
- Human anatomy (2 s.h.)
- Methods in physical education or administration (3 s.h.)
- Administration of physical education and athletics (3 s.h.)
- Intermediate algebra (3 s.h.)
- Teaching of recreational sports (4 s.h.)
- Practice teaching (2 s.h.)
- Electives in physical education and related areas (11 s.h.)

Total (30 s.h.)

In addition to these courses, undergraduate courses in chemistry, physics, zoology, mathematics, and the physiology of exercise are highly desirable and may be included as electives in related areas.

Graduate requirements

The courses listed below are required for the M.A. degree with thesis.

- Nature and Extent of Field (3 s.h.)
- 27-240 Professional Preparation in Physical Education (2 s.h.)
- Three courses selected from the following:
  - 27-203 Exercise Physiology (2 s.h.)
  - 27-257 Biomechanics of Human Motion (4 s.h.)
  - 27-257 Advanced Measurement and Evaluation in Physical Education (4 s.h.)
  - 27-308 Human Perceptual-Motor Performance (4 s.h.)
  - 27-257 Seminar Research in Physical Education Curriculum (3 s.h.)

Tools of Research

- 7P-143 Introduction to Statistical Methods (3 s.h.)
- 63-141 Introduction to Scientific Research (3 s.h.)
- 221-100 Introduction to Computing with Fortran (3 s.h.)
- 7P-241 Data Processing (3 s.h.)

Specialization Area

- 27-401 Seminar in Scientific Writing (1 s.h.)
- 27-401 Thesis: M.A. (4 s.h.)
- Courses in specialization area approved by advisor (5-7 s.h.)

Total (30 s.h.)

Ph.D. Program

The Ph.D. program in physical education is based on the concept that the successful candidate should have a broad knowledge of all areas of physical education, a working
knowledge of the research techniques which may appropriately be applied to problems in physical education and athletics, and knowledge in depth in at least one of the accepted areas of specialization in physical education.

The areas of specialization offered in physical education are adapted physical education, administration and supervision in physical education, anatomy, biomechanics, curriculum in physical education, exercise physiology, measurement and evaluation in physical education, motor behavior, and therapeutics.

4. Broad background in all areas of physical education, together with a working knowledge of appropriate research techniques, is provided through the required courses in the M.A. with thesis curriculum and the core of courses required for all Ph.D. candidates. With the exception of six semester hours of statistics, all of these courses are taught by members of the physical education faculty.

The candidate is required to complete a minimum of 30 semester hours of graduate work in the specialization of his or her choice and to write a thesis on a problem in that area. The thesis must be submitted to a reputable journal for publication before the Ph.D. is granted. Most of the courses in the areas of specialization are offered by departments other than the Department of Physical Education—Field House. 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 the candidate defends his or her thesis. In addition to writing a comprehensive examination in physical education, the candidate specializing in exercise physiology writing a comprehensive examination prepared and evaluated by faculty members of the Department of Physiology and Biochemistry in the College of Medicine. Such candidates graduate with minors in physiology.

Graduates of the Ph.D. program in physical education have obtained excellent positions in highly reputable colleges and universities throughout the United States and in a number of foreign countries.

Requirements

A candidate must complete the core requirements and the requirements for at least one area of specialization.

The core requirements include:

- 27:942 Selected Applications of Statistical Techniques 3 s.h.
- 27:982 Design and Analysis of Experiments in Biomedical Sciences 3 s.h.
- 27:206 Electromyography in Kinesiology and Biomechanics 3 s.h.
- 27:375 Research Techniques in Biomechanics 3 s.h.
- 257:190 Readings in Energy Engineering 6 s.h.
- 27:203 Practicum in College Teaching 3 s.h.

The foreign language requirement differs for each area of specialization. All candidates not required to demonstrate proficiency in a foreign language must satisfactorily complete 27:240 Data Processing or 25C:100 Introduction to Computing with FORTRAN.

A minimum of 30 semester hours of required and elective courses must be completed in the candidate’s area of specialization. The courses required by area of specialization are:

Adapted Physical Education

- 27:201 Research 3 s.h.
- 27:205 Advanced Physical Education: Special Topics and Research 4 s.h.
- 60:106 Human Anatomy 4 s.h.
- 60:106 Human Anatomy and Neuroanatomy 4 s.h.

Administration and Supervision in Physical Education

- 27:242 Supervision of Physical Education 3 s.h.
- 27:301 Foundations of School Administration 3 s.h.
- 27:301 Research 4 s.h.
- 27:207 Advanced Administration of Physical Education 2 s.h.
- 27:307 Advanced Administration of Athletics 2 s.h.
- 27:340 Professional Preparation in Physical Education 2 s.h.

Anatomy

- 60:203 Gross Human Anatomy for Graduate Students 8 s.h.
- 60:108 Human Anatomy and Neuroanatomy 4 s.h.
- 60:110 Neuroanatomy and Behavior 4 s.h.
- 37:122 Cell, Tissue, and Organ Biology 5 s.h.
- 27:153 Advanced Anatomy and Kinesiology 5 s.h.
- 27:295 Electromyography in Kinesiology and Biomechanics 3 s.h.

Biomechanics

- 321:190 Readings in Energy Engineering 6 s.h.
- 27:206 Electromyography in Kinesiology and Biomechanics 3 s.h.
- 60:109 Human Anatomy and Neuroanatomy 4 s.h.
- 27:203 Practicum in College Teaching 3 s.h.
- 27:206 Electromyography in Kinesiology and Biomechanics 3 s.h.
- 27:375 Research Techniques in Biomechanics 4 s.h.

Curriculum in Physical Education

- 27:201 Research 3 s.h.
- 27:202 Practicum in College Teaching 3 s.h.
- 27:340 Professional Preparation in Physical Education 3 s.h.
- 27:205 Advanced Physical Education: Special Topics and Research 4 s.h.
- 60:106 Human Anatomy 4 s.h.
- 60:106 Human Anatomy and Neuroanatomy 4 s.h.

Exercise Physiology

- 27:274 Advanced Exercise Physiology 2 s.h.
- 27:212 Medical Physiology 6 s.h.
- 27:212 Special Topics 2 s.h.
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7P:244 Correlation Methods 3 s.h.
225:153 Introduction to Probability 3 s.h.
225:164 Introduction to Mathematical Statistics I 3 s.h.
7P:246 Design of Experiments 4 s.h.
7P:255 Construction and Use of Classroom Evaluation Instruments 3 s.h.
7P:257 Educational Measurement and Evaluation 3 s.h.
273:367 Seminar: Research in Measurement and Evaluation in Physical Education 3 s.h.

Motor Behavior and Learning
27:312 Selected Issues in Information Processing and In Motor Control 3 s.h.
27:314 Seminar in Motor Behavior Research 3 s.h.
31:223 Information Processing in Psychology 3 s.h.

Therapeutics
101:227 Research in Therapeutics 5 s.h.
101:214 Principles of Human Motion II 3 s.h.
72:110 Neurobiology and Behavior 5 s.h.
12:271 Advanced Cardiovascular Therapeutics and Physiology 2 s.h.
60:115 Microscopic Anatomy for Medical Students 4 s.h.
or
527:190 Readings in Energy Engineering 2 s.h.
or
72:274 Advanced Exercise Physiology Seminar 2 s.h.
72:281 Advanced Neurophysiology: Muscle 2 s.h.

Admission Requirements
M.A. with and without Thesis
For admission to the program leading to the M.A. degree with or without thesis, see the admission requirements prescribed by the Graduate College.

Ph.D. Program
The student is admitted to the study program leading to the Ph.D. degree on the basis of
His or her grade-point average on the work he or she has completed for the M.A. or M.S. degree, and his or her score on the Graduate Record Examination (Apptitude Test). To be considered for admission, the student must have earned a grade-point average of 3.0 or higher on all graduate work undertaken.

Facilities
The Recreation Building and Field House provide excellent facilities for use in the physical education skills program, in the undergraduate and graduate instructional programs, and for student participation in Intramural sports, recreational activities and aquatics.

Research laboratories for physiology of exercise, stress, motor behavior and biomechanics are located in the Field House and provide excellent facilities for instruction and research at both the undergraduate and graduate levels.

Because of our cooperative efforts with other departments to facilitate specialization, physical education students use additional special facilities in other departments on the campus.

Courses
Primarily for Undergraduates

- Elective Physical Education (6 s.h.): Each student may elect six hours of physical education courses from the following: 1) Exercise Science, 2) Interdisciplinary Approach to Physical Education, 3) Motor Learning, 4) History of Physical Education, 5) Sport Management, 6) Adapted Physical Education.

For Undergraduates and Graduates

- Elective Physical Education (6 s.h.): Each student may elect six hours of physical education courses from the following: 1) Exercise Science, 2) Interdisciplinary Approach to Physical Education, 3) Motor Learning, 4) History of Physical Education, 5) Sport Management, 6) Adapted Physical Education.

- Elective Physical Education (3 s.h.): Each student may elect three hours of physical education courses from the following: 1) Exercise Science, 2) Interdisciplinary Approach to Physical Education, 3) Motor Learning, 4) History of Physical Education, 5) Sport Management, 6) Adapted Physical Education.
27.110 Workshop: Elements and Aging
The course includes the effects of exercise on the aging process and of aging on the ability to exercise. Selected fitness concerns relative to older adults and the elderly, and the development of fitness programs for the elderly.
Seminar.
3.0 hrs.
27.139 Track and Field Activities
Control training.
2.0 hrs.
27.136 Workshop in Advanced Athletic Coaching
Summer session.
1.0 hrs.
27.131 Advanced Theory and Techniques of Swimming and Diving
First semester.
3.0 hrs.
27.137 Selected Physical Education Programs
First semester. Same as 7E.137; 7S.137.
3.0 hrs.
27.148 Workshop: Physiological Effects of Activity
Summer session.
1.0 hrs.
27.141 Elementary Exercise Physiology
First semester. Prerequisite: 72.140.
3.0 hrs.
27.142 Knowledge and Performance Tests in Physical Education
First semester.
0.0 hrs.
27.153 Advanced Anatomy and Kinesiology 3-5, 5.0 hrs.
Emphasis on preparation for teaching anatomy and kinesiology at the undergraduate level. Second semester.
2.0 hrs.
27.165 Advanced Instruction in Selected Additions
Split session.
0.0 hrs.
27.166 Sports and Movement for Dancers
May be repeated.
1.0 hrs.
27.167 Biomathematics of Athletics
Second semester. Prerequisite: 72.167.
3.0 hrs.
27.169 Physical Education for Elementary School
Second semester. Same as 71.169.
2.0 hrs.
27.189 Perceptual Motor Skill Development in Children
First semester. Same as 71.189.
3.0 hrs.
27.187 Measurement and Evaluation in Physical Education
Second semester. Prerequisite: 72.187.
3.0 hrs.
27.191 Workshop in Athletic Training
Second semester.
0.0 hrs.
27.193 Medical Supervision of Athletics
Second semester.
0.0 hrs.
27.195 Selected Techniques in Athletic Training
First semester. Prerequisite: 72.191.
2.0 hrs.
27.197 Athletic Training: Medallions and Interpretations
Second semester. Prerequisite: 72.193.
2.0 hrs.
27.194 Laboratory Practice in Athletic Training
First semester.
2.0 hrs.

Primarily for Graduates
27.291 Research in
Contact Department head before registering.
27.292 Practicum in College Teaching
3.0 hrs.
3.0 hrs.
27.293 Psychology of Sport
Psychological principles and their application to sport.
2.0 hrs.
27.295 Applied Physical Education: Special Topics in Exercise
First semester. Prerequisite: 27.130 and 27.126.
4.0 hrs.
27.297 Advanced Administration of Physical Education
First semester.
2.0 hrs.
27.298 Seminar: Contemporary Issues in Motor Behavior
Informal seminar in which current developments in motor behavior are discussed.
2.0 hrs.
27.307 Advanced Administration of Athletics
First semester.
2.0 hrs.
27.309 Physical Science Curriculum in Physical Education
Second semester. Same as 7S.309; 7S.309.
3.0 hrs.
27.304 Professional Preparedness in Physical Education
Critical analysis of current undergraduate and graduate programs in physical education. Second semester.
2.0 hrs.
27.314 Scientific Principles of Physical Conditioning
Second semester. Prerequisites: 72.141 or 7S.141.
1.0 hrs.
27.314 Supervisors of Physical Education
First semester. Same as 7S.314; 7S.314.
3.0 hrs.
27.315 Biomechanics of Human Motion
Second semester. Prerequisite: 7S.157.
4.0 hrs.
27.316 Seminar: Current Developments in Biomechanics
0.0 hrs.
27.317 Advanced Measurement and Evaluation in Physical Education
Second semester.
2.0 hrs.
27.325 Electroencephalography and Biomechanics
Introduction to electromyographic techniques for the study of muscle activity in human motion. Second semester. Same as 125 225.
3.0 hrs.
27.321 Recent Theoretical Developments
3.0 hrs.
27.315 Seminar: Physical Education for the Mentally Retarded
First semester.
2.0 hrs.
27.326 Human Perceptual-Motor Performance 3-4, 5.0 hrs.
Motor-learning principles and practical implications for teaching. First semester.
2.0 hrs.
27.310 Colloquium
Second semester.
0.0 hrs.
27.311 Colloquium in Graduate Study
First semester.
0.0 hrs.
27.312 Selected Issues in Information Processing and in Motor Control
3.0 hrs.
27.316 Seminar in Motor Behavior Research
Second semester.
3.0 hrs.
27.327 Seminar: Research in Physical Education Curriculum
Students who have not completed 27.307 or equivalent must enroll 27.327.
3.0 hrs.
27.326 Seminar: Methods and Theory in Curriculum
First semester.
2.0 hrs.
27.327 Research Techniques in Biomechanics
Second semester.
4.0 hrs.
27.327 Seminar: Research in Measurement and Evaluation in Physical Education
Second semester.
4.0 hrs.
27.341 Seminar in Scientific Writing
Second semester.
1.0 hrs.
27.482 Research Methods in Physical Education
2.0 hrs.
27.484 Thesis: M.A.
8-4 hrs.
27.485 Thesis: Ph.D.
Not to exceed 12 semester hours.

Physical Education and Dance—Halsey Gymnasium
Chair: Margaret T. Fox
Faculty: professor Margaret G. Fox, professor of education; M. Owen Scott, associate professor; Jacqueline L. Biefield, assistant professor; Judith L. Allen, Munia P. Byrne, Jane E. Clark, Christine H. Hsu, Sara L. McCone, Yvonne L. Breston, Carol L. Ritterman, instructors Catherine Callaham, Linda L. Robichaud, Alicia A. Brown, Katharina M. Carlson, Jody Ann Donaldson, Marjorie R. Eisenberg, Giorgio Suvia, Jane A. Hagstrom, Terri Heinecke, James H. Heaslip, Linda Simonov, Diane M. Thomas, Carol A., Winifred Dwyer Pratt, Allen B. Rinehart, M.A., Ph.D., Ph.D., Ph.D., Ph.D., Ph.D.
The Department of Physical Education and Dance (Halsey Gymnasium) offers instruction in physical education (teaching and nonmajoring majors), the coaching of sports, the teaching of dance and dance performance, pre-physical therapy, and sports communications.
Graduate work is offered leading to an M.A. in physical education, dance, and sports communications, and to a Ph.D. in physical education.

Physical Education Major
Undergraduate Curricula
Each student in the physical education curriculum elects a wide variety of courses and activities, thus preparing for careers in business/industry, sports journalism, broadcasting, fitness/health clubs, professional dance/theater, and public school teaching and coaching.
Theoretical background is provided through anatomical, kinesiological, physiological, and health courses, with implications for the performance and teaching of movement skills.
The undergraduate physical education curriculum also is designed to provide the background for a student to enter a graduate program in physical education. (See "Graduate Programs" for areas of specialization.)
The student who plans to teach must meet certification requirements (see "College of
### Physical Education Teaching Curriculum

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>28:16 Senior Life Saving and Water Safety Instructor's Course</td>
<td>1-2 s.h.</td>
</tr>
<tr>
<td>28:19-20 Introduction to Human Movement</td>
<td>3 s.h.</td>
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<tr>
<td>28:25-28 Teaching of Sports</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>28:27 Teaching of Dance</td>
<td>2 s.h.</td>
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<tr>
<td>28:31-32 Advanced Physical Education</td>
<td>2 s.h.</td>
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<tr>
<td>28:37 Advanced First Aid</td>
<td>2 s.h.</td>
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<tr>
<td>Red Cross Certification</td>
<td>1 s.h.</td>
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<tr>
<td>28:40 Tennis</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>28:41 Golf</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>28:42 Bachinton</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>28:43 Volleyball</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>28:47 Gymnastics</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>28:49 Bed and Breakfast</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>28:46 Field Sports</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>28:50 Softball</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>28:51 Field Hockey</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>28:52 Basketball</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>28:53 Modern Dance I or Jazz</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>28:55 Track and Field</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>28:57 Recreational Sports</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>28:60 Anatomy</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>28:61 Kinesiology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>28:63 First Aid</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>28:64 Homeroom Readings</td>
<td>arr.</td>
</tr>
<tr>
<td>28:64 Honors Readings</td>
<td>arr.</td>
</tr>
</tbody>
</table>

### Program Leading to Endorsement for Coaching

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>28:14 Coaching Women's Sports</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>or</td>
<td></td>
</tr>
<tr>
<td>28:26 Advanced Coaching</td>
<td>2 s.h.</td>
</tr>
</tbody>
</table>

### General Studies in Health, Physical Education, and Recreation

The purpose of this program is to give a background in health, physical education, and recreation, not as a preparation for a career in this field but as a broad acquaintance with material relevant to personal and family recreation and healthful living. Each student's program is planned with an advisor, following broad guidelines and oriented to the student's objectives.

### Health Education Secondary Approval

This secondary approval area (minimum standards, not a major) for Iowa Endorsement 20 teacher certification requires a minimum of 26 semester hours of credit, including the following required courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>17:10 Growth and Development of the Young Child</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>17:41 Food, Nutrition, and Menu</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>27:53 Human Anatomy</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>or</td>
<td></td>
</tr>
<tr>
<td>28:80 Anatomy</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>46:56 Non-Prescription Drugs</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>27:56 First Aid</td>
<td>0 s.h.</td>
</tr>
<tr>
<td>or</td>
<td></td>
</tr>
<tr>
<td>28:37 Advanced First Aid</td>
<td>7 s.h.</td>
</tr>
<tr>
<td>or</td>
<td></td>
</tr>
<tr>
<td>Red Cross Certification</td>
<td></td>
</tr>
<tr>
<td>72:13 Introduction to Human Physiology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>or</td>
<td></td>
</tr>
<tr>
<td>28:12 Human Sexuality</td>
<td>5 s.h.</td>
</tr>
<tr>
<td>28:14 Contemporary Issues of Health Education</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>28:14 Administration of School Health Program</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>28:16 Health Instruction for Secondary Schools</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Approval to Teach Health in Grades K-9

To qualify for approval to teach health in grades K-9 within the elementary education program (Iowa Endorsement 10), the
student must earn at least 28 semester hours in that area of specialization, including these required courses:

- 17:41 Food, Nutrition, and Man 3 s.h.
- 27:53 Human Anatomy 2 s.h.
- 28:80 Anatomy 4 s.h.
- 27:56 First Aid 0 s.h.
- 26:37 Advanced First Aid 3 s.h.
- or Red Cross certification

**Honors Program**

The Honors Program is designed to serve the interests of the superior student. To be eligible for Honors, the student must have at least a "B" average at the beginning of the junior or senior year when Honors courses are taken, and must continue to maintain a "B" average throughout the remainder of his or her college work. This is an opportunity to get some experience in research and gain a perspective on certain aspects of graduate work.

**Graduate Programs**

The Department was one of the pioneers in graduate physics education programs for women. In the more than half century of graduate work they have played an active role in the profession. In their institution and their communities. The curriculum assumes previous education in the natural sciences. A program is planned with the individual in light of his or her previous education and anticipated future career. Completion of the graduate degree usually leads to teaching, administration or supervision in the schools or in a university. Research preparation is provided for anyone who wishes a career in that area. All M.A.

students must meet the requirements of the Graduate Education Program, including the admission requirements and satisfactory progress towards the degree. The Graduate Education Program requires a minimum of 30 semester hours of graduate work including 3 hours of research. The program consists of 24 semester hours of course work and 6 hours of research. The research requirement is fulfilled by the completion of a thesis or equivalent project. The thesis or equivalent project is a written document that presents the results of original research and is approved by the candidate and the graduate committee.

**The Master of Arts Degree**

The M.A. degree is awarded on completion of at least 30 semester hours of graduate work including theses, or 36 hours including theses. The curriculum in Zoology and Psychology is designed to prepare the student for advanced work in the area of specialization. The curriculum is designed to provide a solid foundation in the basic sciences, including mathematics, biology, chemistry, physics, and geology. The curriculum is designed to provide a solid foundation in the basic sciences, including mathematics, biology, chemistry, physics, and geology. The curriculum is designed to provide a solid foundation in the basic sciences, including mathematics, biology, chemistry, physics, and geology.

**General Field Recommendations**

- 28:107 Physical Education for the Physically Handicapped 3 s.h.
- 28:113 Measurement 2 s.h.
- 28:115 Methods and Principles of Physical Education 3 s.h.
- 28:121 History and Philosophy of Physical Education 2 s.h.
- 28:205 Techniques of Research 3 s.h.
- 28:215 Analysis of Human Movement 3 s.h.
- 28:201 Problems in Physical Education 2 s.h.
- or 28:401 Thesis 4 s.h.
- 28:302 Seminar: Perspectives in Human Movement 2 s.h.

*Not required of those having similar undergraduate courses. No more than 5 s.h. of these courses may be counted toward the M.A. degree.

**Electives**

The requirements of the program are planned with the approval of the advisor and the chair of the Department. A student may be permitted to take a nonthesis M.A. Such a curriculum requires a minimum of 30 semester hours plus a project instead of a thesis and specified courses. Students may elect either a general master's program or a specialization. Specialized programs are offered in administration, coaching, dance, measurement and evaluation, motor development, philosophy of physical education and sport, sociology of physical education and sport, and sports communications. Students desiring other specializations are encouraged to submit a course of study to the graduate committee for consideration.

**The Doctor of Philosophy Degree**

The Ph.D. degree is awarded on completion of approximately 90 semester hours of graduate work, including general requirements for the master's degree and credit for the dissertation.

**Prerequisites**

Background is required in anatomy, kinesiology, physiology, health education, methods in physical education, administration, and physical education techniques.

**Tools of Research**

As a basic for research and/or broad reading of international professional literature, students in the program must have an appropriate level of proficiency in statistical methods, and a minimum of five-year reading ability in a foreign language or, if it is an appropriate alternative, basic computer.
Dance Major

The Undergraduate Program

Required

280:112 Rhythmic Analysis of Dance 2 s.h.
280:127 Dance Production 2 s.h.
280:80 Anatomy 4 s.h.
28:81 Kinesiology 3 s.h.
280:114 History and Appreciation of Dance 3 s.h.
280:115 Twentieth-Century Dance 3 s.h.
280:123-124 Composition I-II 4 s.h.
280:171-172 Dance Company Class 2 s.h.
280:177 Beginning Labanotation 3 s.h.
361:100 Dramatic Art Laboratory arr.
Electives
12 hours from the following or related subjects in theater, music, etc.
*280:39 Teaching of Modern Dance 2-4 s.h. arr.
280:81 Independent Study 3 s.h.
*280:111 Methods and Materials of Teaching Children's Dance 3 s.h.
280:113 Ballet Points 2 s.h.
280:116 Dance in Education 2-3 s.h.
280:117 Ballet Pedagogy 2 s.h.
280:122 Workshop: Artist in Residence 1-4 s.h.
280:128 Dance Production Laboratory 1-6 s.h.
280:130 Improvisation 1 s.h.
280:141 Introduction to Movement: Dynamics and Personality Growth 3 s.h.
280:142 Introduction to Movement: Dynamics and Personality Growth 3 s.h.
280:176 Readings in Dance 2 s.h.
280:175-174 Composition I-IV 3 s.h.
280:175 Dance Theory 3-6 s.h.
280:178 Criticism of Dance 3-6 s.h.
280:179 Intermediate Labanotation 3 s.h.
280:181 Dance Company Class 1-2 s.h.

*Required of all dance majors in the teaching curriculum. 28:37 Advanced First Aid or Red Cross certification also required of all majors in teaching curriculum. See "College of Education" for certification requirements for public school teaching. Dance majors must take a technique class each semester with a maximum of 14 hours allowed toward a degree, and including a minimum of 4 s.h. of ballet and 4 s.h. of modern.

The M.A. Program

The M.A. degree in dance is awarded on completion of at least 30 semester hours of graduate work including thesis. The curriculum may lead to teaching of dance or to further work toward a dance career.

Prerequisites

Audition
Intermediate modern or ballet technique
280:112 Rhythmic Analysis of Dance 2 s.h.
280:114 History and Appreciation of Dance 3 s.h.
280:123-124 Composition I-II 4 s.h.
280:127 Dance Production 2 s.h.
280:30 Anomaly 4 s.h.
280:81 Kinesiology 3 s.h.
Electives

Required

280:115 Twentieth-Century Dance 3 s.h.
280:173-174 Composition I-IV 2 s.h.
280:125 Dance Techniques 2 s.h.
280:175 Dance Theory 3 s.h.
280:176 Criticism of Dance 3 s.h.
280:177 Beginning Labanotation 3 s.h.
280:204 Seminar: Modern Movement 2 s.h.
280:302 Seminar: Perspectives in Human Movement 2 s.h.
280:305 Techniques of Research 3 s.h.
280:401 Thesis 3 s.h.
280:216 Physiological Functioning in Physical Education 3 s.h.
361:100 Articulate Art Laboratory 1 s.h.
Elective courses may be taken in related areas of physical education, music, theater, and/or art, with consent of advisor.

Faculty

The faculty represents diversified backgrounds and specializations. Abilities and interest are complementary. Most faculty members hold advanced degrees. Several bring educational backgrounds from abroad. All are experienced teachers. Graduate faculty members are experienced in research and writing and are available for
the guidance of graduate students in their areas of specialization.

Facilities
Gymnasium, dance studios, special exercise rooms and pools are used in the various programs in Halley Gymnasium, North Hall, the Field House, the Recreation Building and the recreation areas of the Memorial Union. The field for outdoor sports and hard surfaced tennis courts are near Halley Gymnasium. The proximity of the river makes canoeing instruction feasible on a regular class schedule. The area is located along the river in a "wet" setting; outdoor facilities and a river are available between the Field House and the Recreation Building. The University golf course is used for some classes and for the women's intercollegiate golf team.

Courses
Physical Education

Primarily for Undergraduates

29:11 Elective Physical Education 1 s.h.
Physical education means only. May be repeated.
29:17 Advanced Physical Education 1 s.h.
Electives open to those who have completed requirement in physical education may be repeated.
29:14 Coaching Women's Sports 2 s.a.
Introduction to the techniques and psychology of coaching.
29:18 Senior Life Saving and Water Safety Instruction 1 s.a.
Instructor Certification. Requires the 29:20 Basic Water Safety Instructor Certification in addition to instructor certification.
29:16 Introduction to Human Movement 1 s.a.
Study of the principles of physical education as related discipline. Selective approach with emphasis on attitude development and cooperation.
29:20 Introduction to Human Movement 1 s.a.
Prerequisite: 29:16 or consent of instructor.
29:25 Teaching of Sports 2 s.a.
Teaching of team sports.
29:26 Teaching of Sports 2 s.a.
Combination of 29:20, teaching of individual sports. Including swimming.
29:27 Teaching of Dance 2 s.a.
Methods course for the teaching of ballet and square dance, including observation of class in progress, lesson planning, evaluative procedures, materials, teaching aids and the teaching of elementary, secondary and college classes.
29:38 Recreational Physical Education 0 s.a.
Varied activities open to all students.
29:21 Obitrating 1 s.a.
Offering techniques for team sports.
29:22 Obitrating 1 s.a.
May follow 29:21 or be independent. 1 s.a.
29:27 Advanced First Aid 2 s.a.
Leads to certification for American Red Cross Advanced First Aid and Emergency Care Certificates.
29:28 Tennis 1 s.a.
29:24 Golf 1 s.a.
29:24 Badminton 1 s.a.
29:24 Volleyball 1 s.a.
29:27 Squash 2 s.a.
29:24 Intramural Tennis 1 s.a.
29:24 Field Sports 1 s.a.
29:20 Softball 1 s.a.
29:21 Field Hockey 1 s.a.
29:28 Basketball 1 s.a.
29:28 Modern Dance I 1 s.a.
29:28 Modern Dance II 1 s.a.
29:50 Field and Square Dance 1 s.a.
Basic with option courses beginning in intermediate-level western square dances, beginning to intermediate international folk dances background and cultural information included.
29:56 Track and Field 1 s.a.
29:57 Recreational Sports 1 s.a.
29:71 Methods and Materials in Elementary School Physical Education 2 s.a.
Prerequisite: 29:18; 29:20; 29:27. Emphasis on elementary teaching techniques and the growth and development. Fall, Same as 70:71.
29:72 Methods and Materials in Elementary School Physical Education 2 s.a.
Practica consideration and planning for prospective teachers of elementary school physical education. Spring. Prerequisites: 29:27; 70:71. Same as 70:72.
29:50 Antiquity 4 s.a.
Required of all students majoring in physical education; general human anatomy, with emphasis on factors influencing movement. Fall.
29:81 Health Education 3 s.a.
29:91 Independent Study arr.
29:93 Hours Readings arr.
29:94 Hours Readings arr.

For Undergraduates and Graduates

29:111 First Aid for the Individual 3 s.a.
Physical means of youth and adults, physiological process of conditioning.
29:122 Research on Women in Sports 2-3 s.a.
Analysis of research completed, and planning for research needed relative to women in competitive programs.
29:16 Health Education Workshop 1-2 s.a.
29:16 Care of Athletic Injuries 2 s.a.
Introduction to emergency medical and rehabilitative treatment of injuries occurring in women's sports. Spring.
29:18 Physiological Implications for Teaching Physical Education 2-3 s.a.
Physiological effects of exercise and load of exercise: methods of conditioning for various exercise programs. Fall.
29:187 Physical Education for the Physically Handicapped 3-4 s.a.
Mechanics of posture for the physically handicapped or normal people. Special emphasis on the physically handicapped. Spring. Prerequisites: 29:27 and 29:28 or equivalent.
29:121 Principles and Administration of Recreational Services for Men 2 s.a.
Contact of intercollegiate designed to provide educational experience for the participants in the training of experienced coaches.
29:188 Coaching 1-4 s.a.
Appreciation for physical education for coaching, and the teaching of such for beginner, as well as for the more skilled, athlete to different age levels, presented in workshop form by experienced teachers.
29:184 Measurement 2 s.a.
Practical and theoretical considerations in the selection, construction and administration of motor performance tests. Exercises includes the analysis of tests and test scores.
29:156 Methods and Principles of Physical Education 2 s.a.
Philosophical issues of teaching and learning. Fall. Same as 70:156.
29:185 Caretaker and Administration of Physical Education 2 s.a.
29:121 History and Philosophy of Physical Education 1 s.a.
29:127 Advanced First Aid and Instructor Training 2 s.a.
29:45 Perceptual and Motor Skill Development in Children 2 s.a.
Basic mechanisms underlying development of perceptual motor skills in children. Same as 29:50.
29:145 Contemporary Issues in Health Education 2 s.a.
Physical education and recreation program as an aspect of current social trends. Fall.
29:143 Health Problems of Youth 1 s.a.
Workshop on current health problems.
29:144 Administration of School Health Program 2 s.a.
Current administrative factors affecting curricular construction and program trends in health education K-12.
29:146 Methods: Health Instruction for Elementary Grades 2 s.a.
29:147 Methods: Health Instruction for Secondary Grades 2 s.a.
29:156 Health Education for Secondary Schools 2 s.a.
Introduction to health education philosophy, current methods, materials and techniques for grades 7-12. Required for Health Education 7-12 certification.
29:148 Elementary School Physical Education 3 s.a.
Methods, curriculum planning, opportunities for improving performance skills in all areas as well as the role the elementary education plays, socially according to sex. Fall. Same as 70:123.
29:155 Investment Education 1-3 s.a.
Pre-appraisal of movement analysis education.
Physician's Assistant Program

See "College of Medicine."

Physics and Astronomy

The Bachelor of Science program is designed to serve either as preparation for graduate study in physics and related sciences, or as preparation for employment in industry.

The Bachelor of Arts program is designed for students who wish a considerable knowledge of physics but who do not plan a research-oriented career in physics. This degree program can be useful to 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.

Bachelors of Science Degree

The following courses or their equivalents are required for the Bachelor of Science degree with a major in physics:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>220:25-26</td>
<td>Calculus I-II</td>
<td>8 a.h.</td>
</tr>
<tr>
<td>220:27</td>
<td>Introduction to Linear Algebra</td>
<td>4 a.h.</td>
</tr>
<tr>
<td>220:28</td>
<td>Calculus III</td>
<td>4 a.h.</td>
</tr>
<tr>
<td>220:35-37</td>
<td>Engineering Calculus I-II</td>
<td>12 a.h.</td>
</tr>
<tr>
<td>220:38</td>
<td>Differential Equations and Linear Algebra</td>
<td>4 a.h.</td>
</tr>
<tr>
<td>220:17-19</td>
<td>Introductory Physics I-II</td>
<td>12 a.h.</td>
</tr>
<tr>
<td>220:115</td>
<td>Intermediate Mechanics</td>
<td>3 a.h.</td>
</tr>
<tr>
<td>220:116</td>
<td>Intermediate Quantum Mechanics</td>
<td>3 a.h.</td>
</tr>
<tr>
<td>220:129</td>
<td>Statistical Physics</td>
<td>3 a.h.</td>
</tr>
<tr>
<td>220:129-130</td>
<td>Electricity and Magnetism</td>
<td>6 a.h.</td>
</tr>
<tr>
<td>220:132</td>
<td>Intermediate Laboratory</td>
<td>4 a.h.</td>
</tr>
<tr>
<td>229:1 Atomic Physics (2 semesters)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Two additional courses, one of them at the 190-level, selected from: 220:117, 220:128, 220:132 (an additional sem), 220:171, 220:191, 220:192, 220:194; and an additional five a.h. of introductory coursework in another science or engineering field.

Physical Therapy

See "College of Medicine."
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 Degree**

The following courses or their equivalents are required for the Bachelor of Arts degree with a major in physics:

- 22M55-56 Calculus I-II 8 s.h.
- 22M55-56 Engineering Calculus I-II 8 s.h.
- 29:17-18 Introductory Physics I-II 8 s.h.
- 29:11-12 College Physics 8 s.h.
- 29:16 Introductory Physics III 4 s.h.
- 29:11 Intermediate Mechanics 3 s.h.
- 28:11 Statistical Physics 3 s.h.
- 29:128 Electronics 4 s.h.
- 29:128 Electricity and Magnetism 3 s.h.
- 29:132 Intermediate Laboratory 4 s.h.

(2 semesters)

An additional 12 s.h. or more of science in a single thematic area as approved by the student's advisor.

**Undergraduate Major in Astronomy**

Astronomy includes the subdisciplines of astrophysics, classical astronomy, radio astronomy and space astronomy. A balanced and integrated program of astronomy, physics and mathematics courses is required for the Bachelor of Arts 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 Arts degree with a major in astronomy:

- 22M55 Calculus I 4 s.h.
- 22M56 Calculus II 4 s.h.
- 22M27 Introduction to Linear Algebra 4 s.h.
- 22M55 Calculus III 4 s.h.
- 22M56-57 Engineering Calculus I-II 12 s.h.

**29:17-18 Introduction to Stellar Mechanics**

- 29:129-130 Electricity and Magnetism 6 s.h.
- 29:132 Intermediate Laboratory 2 s.h.
- 29:137 Astronomical Laboratory 2 s.h.
- 29:181 Atomic Physics 3 s.h.

Undergraduate majors in astronomy who plan to pursue graduate study in astrophysics are advised to go beyond the minimum requirements listed above to the greatest feasible extent, and take:

- 29:17-18 Introduction to Stellar Mechanics 6 s.h.
- 29:118 Statistical Physics 3 s.h.
- 29:171-172 Mathematical Methods of Physics 6 s.h.

For general requirements of the College of Liberal Arts, see "College of Liberal Arts."

**Honors**

Selected junior and senior majors may take the 8 to 12 semester hours of 29:59 Honors Seminars and conduct an investigation with the guidance of a faculty member as part of their program for the degree, Bachelor of Arts or Bachelor of Science with Honors in physics or astronomy.

**Graduate Program**

Two advanced degrees are offered in physics, the Master of Science (with or without thesis) and the Doctor of Philosophy, and one in astronomy, the Master of Science (with or without thesis). A student who wishes to pursue a program in astronomy beyond the M.S. level may qualify for a Doctor of Philosophy degree in physics with specialization in astrophysics. Students who plan to pursue graduate study in astrophysics are advised to take the following sequence of courses.

- 22M38 Differential Equations and Linear Algebra 4 s.h.
- 29:17-18 Introduction to Stellar Mechanics 6 s.h.
- 29:129-130 Electricity and Magnetism 6 s.h.
- 29:137 Astronomical Laboratory 2 s.h.

For general requirements of the College of Liberal Arts, see "College of Liberal Arts."

An interdisciplinary program leading to the H.S. and Ph.D. degrees in chemical physics is also available.

Each entering graduate student is assigned to a faculty adviser who will assist in preparing a plan of study and in guiding the student's progress. A graduate student becomes a candidate for an advanced degree in physics or astronomy only after passing a qualifying examination in all principal areas of the subject at the level of advanced undergraduate work. The examination is given during the first week of each semester and must be taken by all first-year graduate students. After a student has selected a research specialty, the appropriate thesis or essay adviser then becomes the candidate's general adviser and the chair of the dissertation committee.

**Master of Science Degree in Physics**

The M.S. degree is offered with thesis or without thesis. Either degree may be an intermediate step toward a Ph.D. degree, or it may be a terminal degree. The final examination in either case is an oral one conducted by a committee of three members of the graduate faculty appointed by the dean of the Graduate College.

The program for the M.S. degree with thesis requires 30 semester hours of graduate work and a thesis based on an original experimental or theoretical investigation by the candidate. No more than six of the required 30 semester hours may be for research (29:261 Research Physics).

The program for the M.S. degree without thesis requires 30 semester hours of graduate work, an independent study of the literature on a chosen topic and the preparation of a critical essay on that topic. No more than four of the minimal 30 semester hours may be for the critical essay (29:262 Individual Critical Study). Up to one-third of the graduate program may be in related scientific fields other than physics and mathematics, e.g., chemistry, astronomy, engineering, etc.

The candidate for either of the M.S. degrees must have satisfactorily completed the following courses or their equivalents as an undergraduate or a graduate:

- 29:115 Intermediate Mechanics 3 s.h.
- 29:116 Introductory Celestial Mechanics 3 s.h.
29:117 Optics 3 s.h.
29:118 Statistical Physics 3 s.h.
29:129-130 Electricity and Magnetism 6 s.h.
29:165 Advanced Laboratory (2 semesters) 6 s.h.
29:171-172 Mathematical Methods of Physics 6 s.h.
29:191 Atomic Physics 3 s.h.
29:192 Nuclear Physics 3 s.h.
29:193 Introductory Solid State Physics 3 s.h.

The student's plan of study should provide for as much advanced work as possible and previous preparation permit.

**Master of Science Degree in Astronomy**

The M.S. degree is offered with thesis or without thesis. The general requirements are the same as for the M.S. in Physics (see above). Course requirements:

29:115 Intermediate Mechanics 3 s.h.
29:116 Introductory Quantum Mechanics 3 s.h.
29:117 Optics 3 s.h.
29:118 Statistical Physics 3 s.h.
29:119-120 Introduction to Stellar Astrophysics I-II 6 s.h.
29:121 Solar System Astrophysics 3 s.h.
29:129-130 Electricity and Magnetism 6 s.h.
29:130 Advanced Laboratory 2 s.h.
29:137 Astronomical Laboratory 2 s.h.
29:171-172 Mathematical Methods of Physics 6 s.h.
29:191 Atomic Physics 3 s.h.

A student who intends to continue for a Ph.D. in physics with an astrophysics specialization should take the following courses as soon as possible:

29:131 Electromagnetism 3 s.h.
29:223-225 Theoretical Astrophysics I-II 6 s.h.
29:234 Stellar Structure and Evolution 4 s.h.
29:231 Special Topics in Astrophysics 2 s.h.
29:233 Seminar: Astrophysics 2 s.h.

**Doctor of Philosophy Degree in Physics**

The program of study for the Ph.D. degree with major in physics includes:

Thorough coursework in both classical and modern theoretical physics for all candidates, whether their specialized research is to be in an experimental or a theoretical area.

Comprehensive examinations:

- Participation in advanced seminars:
- Original research in experimental physics,
- theoretical physics or astrophysics;
- and preparation and defense of a written dissertation based on this work.

All candidates for the Ph.D. must take at least 27 semester hours of 200-level courses in the Department, excluding 29:220, 29:281 and seminars. The following minimum program is recommended as preparation for the comprehensive examinations:

29:191 Atomic Physics 3 s.h.
29:192 Nuclear Physics 3 s.h.
29:193 Introductory Solid State Physics 3 s.h.
29:202 Classical Mechanics 3 s.h.
29:212 Statistical Mechanics I 3 s.h.
29:213-214 Classical Electrodynamics 6 s.h.
29:245-246 Quantum Mechanics I-II 8 s.h.

Advanced mathematics, such as the theory of functions of a complex variable and vector and tensor analysis, is used freely in these courses. An introduction to these fields is given in 29:171-172 Mathematical Methods of Physics. The selection of less advanced courses will depend on the adequacy of the student's preparation for graduate work; the student's choice of more advanced and specialized courses will depend on the direction in which his or her interests develop. No more than 30 of the minimal 72 semester hours may be in research and seminars.

A candidate for the Ph.D. degree will not be recommended for the degree until he or she has written a dissertation in proper form for formal publication and has submitted it, with the approval of the research advisor, for publication to a standard scientific journal of wide distribution.

**Research**

The Department has an excellent library and a number of well-equipped laboratories and observatories. The associated facilities of the University Computer Center are available for research for students and staff of the Department, and several other computers are available within 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 astronomy (optical and radio); low energy nuclear physics; plasma physics; solid state physics; magnetostrictive physics; solar terrestrial, interplanetary, and planetary physics; and acoustics of musical instruments.

A major experimental space physics program is conducted in the Department. Extensive facilities are available for the construction of equipment for satellites and spacecraft, for the reception of satellite telemetry, and for computerized decoding and analysis of data. An unusual versatility 4.6-MV Van de Graaff accelerator, which has been modified for energies up to 14 MeV, is used in studies of nuclear reactions induced by high energy protons, neutrons, helium, and beryllium nuclei. Experiments on fundamental thermal, electrical, and magnetic properties of metals, alloys, and semiconductors are included in the experimental solid state physics program, as are surface studies of metals and semiconductors. Several experimental double plasma devices are used to study convection, nonlinear waves, and turbulence effects in low temperature steady state plasmas.

Research is conducted in observational astronomy. The research observatory is well equipped for photometric and spectrophotometric observations. The primary instrument, a 24-inch reflector with a scanning spectrometer, is used for stellar and cometary studies. Research programs are carried out on the 8.3-meter parabolic reflector located at the North Liberty Radio Observatory near Iowa City. Current long-term research activities include intercontinental VLBI and spectral studies of OH masers. A 34-MHz Mills Cross array, one of the largest radio telescopes in the world, located at Clark Lake in California, is available for studies of the interplanetary medium.

Theoretical research is devoted to elementary particle and high energy physics; plasma physics; x-ray and ultraviolet astrophysics; atmospheric, space, and planetary sciences; solid state physics; and nuclear physics. Persons qualified for graduate study are invited to apply for fellowships and assistantships. Inquiries should be directed to the head of the Department.
Courses

Physics

Prerequisites and corequisites are specified as guides and might be waived if deemed necessary by the instructor. An elementary course may not be repeated for credit or for grade improvement. Only one of the following courses may be applied toward the major: PHYS 140, PHYS 141, PHYS 142, and PHYS 240. PHYS 140 is strongly recommended for majors in physics. PHYS 141 is a prerequisite for PHYS 240.

Primary for Undergraduates

29.1 Beginning Physics 2-3 b.

Three lectures per week, no laboratory. Intended primarily for students in medically related fields. Core courses, properties of light, heat, electricity, acoustics, characteristics of the natural world, principles of motion, laws of motion, conservation of energy, work, power, human activities and society. 29.1 is sequenced as PHYS 24.1, 24.2, and 24.3. PHYS 29.1 is recommended for majors in physics. PHYS 29.1 is a prerequisite for PHYS 24.1.

29.2 Chemistry and Physics of the Environment 4-6 b.

Fundamental discussion of the chemical and physical properties of the earth and its resources, and the interaction of the two. Calculations, properties of matter, properties of light, properties of electricity, properties of sound, properties of water, properties of air, properties of the earth. 29.2 is sequenced as PHYS 24.1, 24.2, and 24.3. PHYS 29.2 is recommended for majors in physics. PHYS 29.2 is a prerequisite for PHYS 24.1.

For Undergraduates and Graduates

29.3 Reading in Physics 3 b.

Four hours per week for the first half of the quarter, five hours per week for the second half of the quarter. Prerequisite: PHYS 29.1.

29.4 Undergraduate Seminar 2 b.

Selection of topics in physics. Prerequisite: PHYS 29.1. PHYS 29.4 is recommended for majors in physics. PHYS 29.4 is a prerequisite for PHYS 24.1.

29.5 Advanced Laboratory 1 b.

Experimental laboratory work in advanced areas of modern physics. May not be repeated. PHYS 29.5 is recommended for majors in physics. PHYS 29.5 is a prerequisite for PHYS 24.1.

29.6 Digital Systems, Microprocessors 4-6 b.

Introduction to microprocessor-based systems; number systems, digital logic design, microprocessor organization, memories, interlocking, I/O interfaces, assembly language instructions, instruction set and programming for the small computer. Two lectures and one laboratory per week. Prerequisite: PHYS 29.1 or equivalent. PHYS 29.6 is recommended for majors in physics. PHYS 29.6 is a prerequisite for PHYS 24.1.

29.7 Physical Chemistry 3 b.

Chemistry and physics of matter; chemical reactions, chemical kinetics, chemical equilibria, chemical thermodynamics. Prerequisite: PHYS 29.1 or equivalent. PHYS 29.7 is recommended for majors in physics. PHYS 29.7 is a prerequisite for PHYS 24.1.

For Graduates

29.8 Mathematical Methods of Physics 3-5 b.

Functions of complex variables, tensor analysis, partial differential equations, special functions, and applications. Prerequisite: PHYS 29.7 or equivalent. PHYS 29.8 is recommended for majors in physics. PHYS 29.8 is a prerequisite for PHYS 24.1.

29.9 Fluid Dynamics 3 b.

Introduction to the mathematical formulation of hydrodynamics. Prerequisite: PHYS 29.7 or equivalent. PHYS 29.9 is recommended for majors in physics. PHYS 29.9 is a prerequisite for PHYS 24.1.

29.10 Statistical Mechanics 3 b.

Thermodynamics and statistical mechanics. Prerequisite: PHYS 29.7 or equivalent. PHYS 29.10 is recommended for majors in physics. PHYS 29.10 is a prerequisite for PHYS 24.1.

29.11 Modern Electromagnetic Theory 3 b.

Electromagnetic theory and applications to modern technology. Prerequisite: PHYS 29.7 or equivalent. PHYS 29.11 is recommended for majors in physics. PHYS 29.11 is a prerequisite for PHYS 24.1.

29.12 Quantum Mechanics 3 b.

Quantum mechanics. Prerequisite: PHYS 29.7 or equivalent. PHYS 29.12 is recommended for majors in physics. PHYS 29.12 is a prerequisite for PHYS 24.1.

29.13 Cosmology 2 b.

Introduction to the basic concepts of cosmology. Prerequisite: PHYS 29.7 or equivalent. PHYS 29.13 is recommended for majors in physics. PHYS 29.13 is a prerequisite for PHYS 24.1.

29.14 Advanced Electromagnetics 3 b.

Advanced topics in electromagnetic theory. Prerequisite: PHYS 29.7 or equivalent. PHYS 29.14 is recommended for majors in physics. PHYS 29.14 is a prerequisite for PHYS 24.1.

29.15 Elementary Particle Physics 3 b.

Introduction to elementary particles and their interactions. Prerequisite: PHYS 29.7 or equivalent. PHYS 29.15 is recommended for majors in physics. PHYS 29.15 is a prerequisite for PHYS 24.1.

29.16 General Relativity 3 b.

Introduction to the basic concepts of general relativity. Prerequisite: PHYS 29.7 or equivalent. PHYS 29.16 is recommended for majors in physics. PHYS 29.16 is a prerequisite for PHYS 24.1.

29.17 Quantum Field Theory 3 b.

Introduction to the quantum theory of fields. Prerequisite: PHYS 29.7 or equivalent. PHYS 29.17 is recommended for majors in physics. PHYS 29.17 is a prerequisite for PHYS 24.1.
Astronomy
See exploratory notes under Physics section.

Primary for Undergraduates

28.24 Modern Astronomy
Survey of astronomy; special attention given to topics of current interest such as planetary exploration, space astronomy, pulsars, quasars, black holes and cosmology. Drill-laboratory sessions for experimental observatories and problem solving.

28.31 General Astronomy
Introduction to the study of the behavior of stars and galaxies. Emphasis on the development of problem-solving skills. No prerequisites except for English proficiency. 1 credit hour each year except 1 credit hour each year in advanced studies. 1 credit hour each year. 1 credit hour each year.

28.34 Reading in Astronomy
Consult course department before registering.

28.274 Solar-Terrestrial Physics
Atmospheres of the sun and radio and particle emissions. Later solar and solar plasma transport, photospheric and coronal emissions. Interplanetary medium and their effects on the earth. Emphasis varies from year to year. May be repeated.

28.31 Research Physics
Prerequisite: consent of head of Department. 1 credit hour each year. May be repeated.

28.02 Introduction to Stellar Astrophysics
Prerequisites: consent of instructor. 1 credit hour each year. May be repeated.

28.03 Stellar System Astrophysics
Prerequisites: consent of instructor. 1 credit hour each year. May be repeated.

28.100 Introduction to Stellar Astrophysics
Prerequisites: consent of instructor. 1 credit hour each year. May be repeated.

28.102 Introduction to Stellar Astrophysics
Prerequisites: consent of instructor. 1 credit hour each year. May be repeated.

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and problems. Both the undergraduate and graduate programs in political science emphasize broad and comprehensive study, rather than narrow specialization on restricted aspects of the subject.

Undergraduate Programs

At the undergraduate level the study of political science is general and not vocational. Undergraduate Political Science majors often enter careers in law, public service, or teaching; others enter business, journalism, or medicine. In addition to the B.A. and B.S. majors the Department offers a special teaching major.

Bachelor of Arts

Undergraduates acaing a B.A. degree must meet the following requirements:

1. At least 27 semester hours of work in political science, including:
   - 20:1 Introduction to American Politics
   - 30:2 Introduction to Politics
   - 20:30 Introduction to Political Theory
   - 30:40 Introduction to Comparative Politics
   - 30:60 Introduction to Political Behavior
   - 30:80 Introduction to World Politics

2. At least 15 semester hours in political science courses numbered 100 or above.

3. At least 12 semester hours in one of these departments: Economics, Geography, History, Journalism, Philosophy, Psychology, Sociology, Anthropology, or Literature.

A grade-point average of at least 2.0 in all political science courses taken at The University of Iowa, and in all courses in the related departmental area of concentration.

Transfer students must take at least nine of the 27 semester hours of work in political science at The University of Iowa.

Political science courses and courses in the related field may not be taken on a pass-fail basis.

Bachelor of Science

Requirements for the B.S. in political science are the same as for the B.A., except for the following:

1. At least two semesters of a foreign language are required.
2. In requirement (2) Linguistics replaces Journalism and Literature, Sciences, and the Arts (excluding, and the student must take six semester hours of mathematics or statistics).

Courses recommended for the mathematics/statistics requirement:

- 22:35-45 Calculus I-II
- 220:102 Introduction to Statistical Methods
- 225:148 Intermediate Statistical Methods

Other courses may be used, with the written approval of the director of undergraduate studies in Political Science.

Teaching Major

Undergraduate planning to teach in the social sciences with an emphasis on political science must meet the following requirements:

1. Same political science course requirements as for the B.A. and B.S., except that the minimum requirement in political science courses numbered above 100 is eight semester hours.

2. Two 12-semester hour courses of courses in one of two of these areas: American History, anthropology, economics, geography, political science, sociology.

3. A completion of the sequence of professional education courses leading to certification (see College of Education).}

Honors in Political Science

The Department also has a program leading to a B.A. degree with Honors. It is open to a limited number of students with a minimum grade-point average of 3.0 on at least 12 semester hours of work in political science. To graduate with Honors, the student must maintain a grade-point average in political science of at least 3.2 and a general grade-point average of at least 3.0. Honors students must take 30:180 Honors Introduction to Political Inquiry and must complete at least two semesters of work in the advanced 30:182-183 Honors Seminar with a grade of B or better each semester. Students interested in seeing a B.A. degree with Honors should contact the Honors Department in the beginning of the junior year.

Graduate Programs

At the graduate level, the Department emphasizes the program leading to the degree of Doctor of Philosophy in political science, which is particularly appropriate for students planning a scholarly academic career; and the Master of Arts in Public Affairs program, which is designed for students who wish to prepare for careers in government service, public affairs, or civic education teaching in secondary schools or junior and community colleges. The general Master of Arts degree is normally 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 indicated in the schedule below, elective opportunities make possible several areas of specialization. Students interested in public administration may use their elective credit to take further courses in municipal, state, or federal administration; administrative theory and behavior; or quantitative analysis. Students interested in public policy analysis may use their elective credit to take courses in quantitative research methods, and courses dealing with substantive policy fields such as economic policy, health policy, national resources policy, or social policy.

This is a nonthesis program. The student must complete at least 32 hours of coursework with at least a 3.0 grade-point average, and must pass a written final examination. Although the schedule suggested below implies completion within a year, the program is sufficiently flexible to accommodate students who may require additional time to meet all degree requirements.

Fall Semester

- 30:222 American Public Policy
- 30:220 Administrative Theory and Public Policy
- 30:180 Electives

Spring Semester

- 32:121 Urban Administration
- 32:203 Comparative Public Policy Analysis
- 68:119 Economics of the Government Sector

Continental Honors advisor prior to the beginning of the junior year.

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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 "College of Law"), the Department normally offers the M.A. only as a preliminary step toward the Ph.D. It does not recommend a general M.A. program for students who do not intend to continue for the Ph.D.

The M.A. degree is normally obtained 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. No more than eight semester hours of credit for thesis preparation will be counted toward the 30-semester-hour minimum requirement for the general M.A.

The final oral examination covers the thesis and core work.

M.A. Without Thesis

If a student's first-year evaluation committee finds that his or her coursework and research papers provide sufficient evidence of the research and writing skills ordinarily demonstrated in a master's thesis, it may recommend that he or she be allowed to proceed with a doctoral program without writing a thesis. The requirements for the M.A. without thesis include completion of at least 24 semester hours 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 the quality of a student's work inadequate for recommending continuation toward the Ph.D., but adequate for proceeding with the master's program, and recommends that the student be permitted to seek the nonthesis M.A. as a terminal degree.

Doctor of Philosophy Program

Students are encouraged to seek the Ph.D., only when they have demonstrated their scholarly worthiness over at least two semesters of graduate study. Requirements for the Ph.D. include completion of at least three academic years in residence and 72 semester hours of graduate-level credit, including work for the M.A. and transfer credits; receipt of the M.A. degree; at least one semester each of special supervised training in teaching and in research; demonstration of command of appropriate research skills; passage of a comprehensive examination; preparation of a dissertation; and the final examination.

The Tool Requirement

The student seeking a Ph.D. degree must demonstrate command of one foreign language or other tool of research, selected with the approval of the doctoral committee. If the tool is other than a foreign language, the student's doctoral committee will specify the criteria to determine whether the requirement has been met. The tool requirement must be met before the student takes the comprehensive examination.

Comprehensive Examinations

Students must take the comprehensive examination after completing the sixth semester of residence, or in the first examination period following their attainment of 45 hours of graduate credit, whichever comes later. Candidates for the Ph.D. take written examinations in three of these areas: American Politics, Comparative Politics, International Politics, Political Theory, Public Policy and Administration, Philosophy, and Methods of Political Research.

Before taking the written examinations, candidates must present a written dissertation proposal, and must explain and defend the proposal in an oral examination, which may also deal with any matter relevant to the written examination.

Teaching and Research Training

Each Ph.D. candidate in political science must take at least one semester of special supervised training in teaching and in research. This instruction is normally given in association with the student's service as a teaching or research assistant.

Dissertation

Not more than 30 semester hours of credit are allowed for the preparation of dissertation, and students may not register for credit for teaching or research solely for work on their dissertations.

Further Information

A comprehensive statement of departmental requirements is set forth in the Guide to Graduate Study in Political Science. For general graduate admission and degree requirements, see "Graduate College."

Special 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 instruction. This assistance is provided to social scientists at the University of Iowa and at 12 other institutions which make up the Iowa Regional Computer Network. The laboratory is an integral part of graduate education in the Department, and is involved at every level of advanced study.

The Social Science Data Archive holds more than 450 data evaluations, and the laboratory is a user center for public-use data from the 1970 United States Census. The facilities of the laboratory include a card-reader/write-printer, two communications terminals, three word processors, and a counter-sorter. The laboratory also supervises the College of Liberal Arts Mini-Computer Terminal Center for the social sciences, which houses
The B.S. program must include the following courses, or equivalents: 31:11 Elementary Psychology or 31:3 General Psychology; 31:143 Introduction to Statistical Methods; 31:120 Experimental Psychology I; 31:121 Experimental Psychology II; and one elective course from each of four of the five three-groupings given below, with at least three of these four core electives being 400-level courses. Candidates for the B.S. degree in psychology must satisfy the College of Liberal Arts natural science core requirement with one semester of chemistry followed by one semester of zoology, or with eight semester hours of chemistry and eight semester hours of physics. B.S. majors also must complete either one semester of calculus and two semesters of one foreign language, or two semesters of mathematics through analytic geometry and four semesters of one foreign language. The courses in natural science and mathematics required for the B.S. degree cannot be taken pass-fail.

Area Electives
Area A (Biological Psychology and Psychophysiological Psychology)
31:126 Comparative Psychology and Ethology
31:123 Psychology of Learning
31:125 Brain Function and Learning
31:136 Psychophysics and Psychology of Perception
31:128 Introduction to Behavioral Pharmacology
31:119 Biological Aspects of Behavior
31:135 Brain Imaging

Area B (Clinical Psychology)
31:153 Psychology of Adjustment
31:105 Personality
31:151 Current Theories of Schizophrenia
31:153 Apomorphine Psychology
31:169 Alcoholic Child Psychology
31:170 Behvior Modigation

Area C (Developmental Psychology)
31:14 Introduction to Child Psychology
31:112 Developmental School Psychology
31:114 Cognitive Development of Children

Area D (General Experimental Psychology)
31:164 Introduction to Mental Processes
31:102 Psychology as a Science
31:110 Learning and Motivation in Children
31:131 Psychology of Language I
31:119 Human Memory: Learning and Conceptual Processes
31:132 Perception

Area E (Social Psychology)
31:15 Introduction to Social Psychology
31:103 Development of Children's Social Behavior
31:100 Attitude Change
31:108 Small Group Processes

The Honors Program
The Department has an active Honors program open to majors with at least a 3.3 grade-point average in psychology courses and a 3.0 overall. The program includes research seminars and individual research collaboration with faculty members. Students ordinarily are solicited to participate in the Department's 31:95 Honors Seminar in Psychology during the spring semester of the junior year. Interested majors should contact the Department Honors Advisor early in the junior year.

Graduate Program
The graduate program in Psychology is designed to provide comprehensive training leading to the Ph.D. degree with emphases in one of the following broad training areas: animal learning and brain physiology, child and developmental psychology, clinical psychology, general experimental psychology, social psychology. The Ph.D. program is planned to provide both general training and specialty training with sufficient flexibility to encompass a wide spectrum of student interests.

The primary purpose of the program is to produce graduates who are deeply committed to the study of behavior, familiar with fundamental knowledge about behavioral processes, thoroughly trained in the methods and techniques of careful investigation of (and applied problems, and deemed to make significant contributions to the discipline of psychology and to society generally.

The most appropriate jobs for graduates of this program are in academic, governmental, business, or private institutions which provide opportunities for continuing analysis of the investigation of fundamental questions about behavior, for teaching about research methodology and research design, and for application of psychological knowledge and techniques to the solution of important practical problems. Prospective students should understand that the number of such positions is sharply limited and the competition for available openings is intense.

Program Requirements
The graduate program in Psychology is designed as a four-year program leading to the Ph.D. degree. Students in the clinical area ordinarily have an additional off-campus internship year. A student entering with a master's degree from another institution will require at least five additional years in this Department depending on the nature and extent of previous research activity.

The M.A. with Thesis
The Master of Arts degree with thesis is required for all students who intend to enter the Ph.D. in this department, and may be the primary degree objective for a very few students, particularly those in special joint programs. This degree is granted after the successful completion of at least 30 semester hours of graduate credit, including requirements specified by the Department: preparation of an acceptable scholarly thesis; and successful oral defense of the thesis. Typically this work for this degree should be completed after four semesters in the Department.

The M.A. without Thesis
The Master of Arts degree without thesis is also available and may be the degree taken by those

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During the letter part of the third year and the first part of the fourth year, and while continuing selected coursework and advanced seminars, the student develops a prospectus for the dissertation research. Following approval of the prospectus, work toward the Ph.D. proceeds with the conduct of the doctoral study, preparation of the dissertation and, finally, the Ph.D. final examination, which is on oral defense of the dissertation.

More specific information about training area programs, degree requirements, policies and procedures for evaluation of student progress and performance, and other matters of concern to graduate students is set forth in the Department's Graduate Student Handbook, which is provided to each student at the time of initial registration.

major Specialty Areas for Graduate Training

The focus of the program in animal learning and biopsychology is on the analysis of learning and motivation, primarily in nonhuman animals. Through the application of behavioral and biological principles, students in this program will have the opportunity to learn the most modern psychological, laboratory, and computational methods in computer-assisted experimentation, electronic instrumentation, neuro-anatomical and histological techniques, and biochemical assays. Special faculty interests are in the fields of classical and operant conditioning, cognitive psychology, motivation, neuroanatomy, neuroendocrinology, and neurobiology.

The student and developmental psychology program provides opportunities for students to acquire a general understanding of the child-development field, as well as a focused understanding of developmental trends within a specific field. Specialized fields include: sensory and perceptual processes, verbal processes and memory, learning and thinking, social processes, and psychopathology.

The clinical psychology program strongly emphasizes an empirical approach to the study of psychopathology. It is designed for students who are primarily interested in developing scientifically understanding of clinical phenomena and in pursuing research skills necessary for systematic investigation of such phenomena. Recognizing that students must become familiar with clinical/material and competent in clinical skills, practicum experience in the Department's research and Training Clinic is closely integrated with coursework in the content, theory, and research methods of psychology and with supervised research experience. Students may develop special competencies in such areas as psychopharmacology, aggression, psychotherapy, behavior therapy, schizophrenia, psychopathology, clinical neuro- and biopsychology, and clinical-developmental psychology. A special training program is supervised jointly by faculty members from the clinical area and from the child and developmental area is available for students with interests in clinical aspects of child and development. Advanced students may complete additional clinical experience in placements with local agencies such as the Veterans Administration Hospital, the Iowa Psychiatric Hospital, the Hospital for Handicapped Children and the Outpatient Rehabilitation Unit. Students ordinarily complete a one-year internship at an accredited clinical facility either before or at completion of the four-year academic program. The clinical training program is fully approved by the American Psychological Association. The general experimental program focuses primarily on the study of human behavior. Three major subareas are represented: cognitive processes, sensation and perception, and experimental child psychology. Students specializing in cognitive processes acquire expertise in areas such as information processing and decision-making, perception, attention, and concept formation and language behavior. Students with interests in sensation and perception may concentrate on visual perception, auditory processes, or mathematical models in perception and psychophysics. Students in experimental child psychology specialize in areas such as brain/mind, learning, thinking and transfer of training. All students in the general experimental program develop a specialization about laboratory techniques, computerized data acquisition and reduction systems, and electronic instrumentation. In addition, they acquire a solid background in statistical techniques and in the historical and contemporary theoretical frameworks of psychology.

The social psychology program offers specialized training in three subareas: social and group behavior, attitude formation and change, and the psychology of groups. The first of these includes phenomena as social learning, interpersonal conformity, social facilitation, behavioral contagion and social reinforcement. The second includes...
attitude escalation, cognitive consistency and the notions of commitment, persuasion and avocation. Under the third subarea, one might focus on group versus individual performance, on interdependence or on leadership in the area of social influence. In addition to thorough training in the basic disciplines of experimental psychology, statistics, research methods, computer processing, etc., the student in this area also has ample opportunities to handle longitudinal observation laboratories and to develop skills in the conduct of field investigations.

Special Facilities

The Department’s facilities for graduate training and research are among the finest in the country. The Kenneth W. Spice Laboratorium of Psychology, and adjoining space in East Hall, include three separate animal facilities, several surgeries, a histology laboratory, a number of small laboratory cubicles, automated data acquisition and reduction systems, observation suites with remote audio-visual control and recording equipment, soundproof chambers, closed-circuit TV systems, electroencephalographic recording rooms, conditioning laboratories, the Research and Training Center and well-equipped electronice, mechanical and woodworking shops. Specially-equipped research trailers are available for use in studies conducted at schools and other locations.

Students and faculty have ready access to the IBM mainframe in the Computer Science Center through an ATS terminal and a remote input-output station in East Hall. Office space for graduate students and faculty is provided in East Hall and the Psychology-Education branch of the main University Library is conveniently located in the west wing of East Hall.

The research and teaching activities of the Department are greatly benefited by the facilities and staff of other University and local agencies including the University Early Childhood Education Center, the University’s General Children’s and Psychiatric Hospital, the Veteran’s Administration Hospital, the University Counseling Center, the Ohio Development Clinic, the Speech and Hearing Clinic, and the Institute of Urban and Regional Research.

Financial Assistance for Graduate Students

All students admitted to the graduate program in Psychology automatically are considered on the basis of merit for such financial aid as may be available in the form of teaching assistantships, research assistantships, fellowships, tuition scholar- ships, etc. No separate application for financial aid is required.

Graduate Admission

As is evident from the preceding paragraphs, the graduate program in psychology is geared primarily to students seeking the Ph.D. degree; all applicants are considered on this basis. A very small number of qualified applicants interested in 4th-year work only through the M.A. level may be admitted, primarily those who intend to pursue a joint graduate program involving psychology and another discipline or profession. Joint programs must be specially designed and the individual must apply to and be accepted by each program.

Applications may be submitted at any time but are considered only once each year—between February 15 and March 15—for admission the following fall.

Admission decisions are based on a composite consideration of prior academic performance, letters of reference, scores on the verbal and quantitative sections of the Graduate Record Examination and the applicant’s statement of reasons for pursuing advanced work in psychology.

Initial review of admission materials is done by faculty members in the specialty area in which the applicant expresses primary interest. An undergraduate major in psychology, including a laboratory course in experimental psychology, a course in statistics and additional work in the natural sciences and in mathematics, is certainly desirable though not required. Students who have not had such a background but who are strongly qualified in other ways may be admitted but will be expected to remedy deficiencies through special coursework or independent study prior to enrolling 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 coursework will be reviewed by the faculty members of the appropriate training area as a 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 and then enter the graduate program at 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.

Special Faculty Strengths

National rankings of graduate programs in psychology have consistently shown that the Department is among the top 20 in the nation. The widely recognized quality of the faculty to research and scholarship is manifest in the publication of some 75 articles, books, reviews and book chapters each year, and in the fact that many of the faculty members are, or have been, active as editors, associate editors and regular consulting editors for major psychological journals.

Courses

For Undergraduates

Two 311 and 312 are prerequisites to all other courses in Psychology except 317 and 3142.

Psychology and its role in the 4th-year student. Students are required to complete 1 of these 2 courses while in their junior year. The 311 course includes the material for course 312. Students who have completed both courses must take the material included in course 312 for credit. The courses may not be taken as a team.

311 Elementary Psychology

Summary of psychology as a science. Attention, perception, motivation, learning, and memory. The course is designed for non-majors and majors in the behavioral sciences. The material may not be taken for credit by majors.

312 General Psychology

Same as 311 but with additional discussion of research methods and the scientific method. The course may be taken for credit by majors.

313 Psychology of Adjustment

Lifestyle and human potential as they relate to self-actualization and personal growth.

314 Developing the Child Psychologist

An introduction for the advanced student to the psychology of children and the development of the child from infancy through adolescence.

315 Introduction to Social Psychology

Research methods used in the study of social behavior. Attention, motivation, group norms, social influence, attitudes, perceptual and cognitive processes, social interaction, contributions to society and influences of social change.

LIBERAL ARTS/Psychology 173
31.14 Methods of Psychological Research 3 s.h.

31.15 Personality 3 s.h.

31.16 Social Psychology 3 s.h.

31.17 Educational Psychology 3 s.h.

31.18 Development of Personality 3 s.h.

For Undergraduates and Graduates

31.19 Social Psychology 3 s.h.

31.20 Personality 3 s.h.

31.21 Psychology 3 s.h.

31.22 Development of Children's Social Behavior 3 s.h.

31.23 Introduction to Psychological Research 3 s.h.

31.24 Introduction to Psychological Research 3 s.h.

31.25 Research Methods in Psychology 3 s.h.

31.26 Experimental Psychology 3 s.h.

31.27 Introduction to Psychological Research 3 s.h.

31.28 Development of Children's Social Behavior 3 s.h.

31.29 Personality 3 s.h.

31.30 Social Psychology 3 s.h.

31.31 Educational Psychology 3 s.h.

31.32 Personality 3 s.h.

31.33 Social Psychology 3 s.h.

31.34 Development of Children's Social Behavior 3 s.h.

31.35 Introduction to Psychological Research 3 s.h.

31.36 Experimental Psychology 3 s.h.

31.37 Introduction to Psychological Research 3 s.h.

31.38 Development of Children's Social Behavior 3 s.h.

31.39 Personality 3 s.h.

31.40 Social Psychology 3 s.h.

31.41 Educational Psychology 3 s.h.

31.42 Personality 3 s.h.

31.43 Social Psychology 3 s.h.

31.44 Development of Children's Social Behavior 3 s.h.

31.45 Introduction to Psychological Research 3 s.h.

31.46 Experimental Psychology 3 s.h.

31.47 Introduction to Psychological Research 3 s.h.

31.48 Development of Children's Social Behavior 3 s.h.

31.49 Personality 3 s.h.

31.50 Social Psychology 3 s.h.

31.51 Educational Psychology 3 s.h.

31.52 Personality 3 s.h.

31.53 Social Psychology 3 s.h.

31.54 Development of Children's Social Behavior 3 s.h.

31.55 Introduction to Psychological Research 3 s.h.

31.56 Experimental Psychology 3 s.h.

31.57 Introduction to Psychological Research 3 s.h.

31.58 Development of Children's Social Behavior 3 s.h.

31.59 Personality 3 s.h.

31.60 Social Psychology 3 s.h.

31.61 Educational Psychology 3 s.h.

31.62 Personality 3 s.h.

31.63 Social Psychology 3 s.h.

31.64 Development of Children's Social Behavior 3 s.h.

31.65 Introduction to Psychological Research 3 s.h.

31.66 Experimental Psychology 3 s.h.

31.67 Introduction to Psychological Research 3 s.h.

31.68 Development of Children's Social Behavior 3 s.h.

31.69 Personality 3 s.h.

31.70 Social Psychology 3 s.h.

31.71 Educational Psychology 3 s.h.
31.239 Technique and Theory of Laboratory Animal Science

In this chapter, various techniques and methodologies in laboratory animal science are discussed. Topics include husbandry, breeding, and experimental procedures. Prerequisites: Consent of instructor.

31.240 Human Nutrition: Models and Applications

This course explores models and methodologies used in the study of human nutrition. Topics include dietary assessment, nutritional epidemiology, and implications for public health. Prerequisites: Consent of instructor.

31.241 Development in Pattern Recognition

Survey of various pattern recognition techniques used in real-world applications. Topics include supervised and unsupervised learning, feature extraction, and classifier design. Prerequisites: Consent of instructor.

31.242 Statistical Analytical Methods

Introduction to statistical techniques and their applications in various fields such as biology, psychology, and economics. Prerequisites: Consent of instructor.

31.243 Quantitative Methods in Psychology

This course introduces quantitative methods and their applications in the study of human behavior. Topics include statistical inference and data analysis. Prerequisites: Consent of instructor.

31.244 Signal Processing

This course covers signal processing techniques used in various fields such as communication, audio, and medical imaging. Prerequisites: Consent of instructor.

31.245 Language Acquisition

Examination of the process of language acquisition and the developmental stages of language acquisition. Prerequisites: Consent of instructor.

31.246 Psychological Assessment

This course provides an overview of psychological assessment techniques and their applications in clinical and research settings. Prerequisites: Consent of instructor.

31.247 Cognitive Psychology

Study of cognitive processes such as attention, perception, memory, and problem-solving. Prerequisites: Consent of instructor.

31.248 Psychological Appraisal I

Introduction to psychological appraisal techniques used in the assessment of individuals. Prerequisites: Consent of instructor.

31.249 Psychological Appraisal II

Continuation of psychological appraisal techniques, focusing on advanced assessment methods. Prerequisites: Consent of instructor.

31.250 Clinical Neuropsychology

This course covers the application of neurocognitive assessment techniques in the evaluation of cognitive and behavioral disorders. Prerequisites: Consent of instructor.

31.251 Clinical Psychology

Study of psychological assessment techniques and their application in various settings such as hospitals, clinics, and schools. Prerequisites: Consent of instructor.
Recreation Education

Chen: Benjamin K., Hurwitz
Faculty: professor John A. McNeil
assistant professors Depp Lee Andre, De Wayne Craig
R-pharm. K. Hurwitz, Michael L. Tonge
instructor: Ronald McNeil
Degree offered: B.A., M.A.

A professional career in recreation and parks involves service to and with people, meeting human needs for personal, social, and creative fulfillment in recreation and leisure activity. The field is characterized by growth and diversity in the past 50 years, the number of people employed in it has doubled, to 200,000.

There are opportunities for professional placement throughout the United States and abroad, in a wide range of public park and recreation settings; voluntary and social agency recreation programs; therapeutic recreation programs; school, military service, commercial and industrial recreation programs, and teaching and research.

In its recreation aspect, the profession deals with the provision of worthwhile recreational opportunities in activities ranging from music and drama to sports and tourism. The park aspect deals with the planning, design, maintenance, and management of recreational land and facilities.

In addition to professional preparation, Recreation Education offers courses in leisure research, the history of the cultural views and attitudes toward free time, and the study of leisure as a contemporary social and cultural issue.

The Department is also involved with service to and consultation with numerous leisure delivery systems throughout Iowa and the nation.

In terms of the "broader mission" of the University, Recreation Education offers service courses designed to acquaint the general college student with the role of leisure in his or her own life and the relevance of a liberal education to areas of life outside of the work place.

The Bachelor of Science Degree

Course requirements for the major are:

Professional Core (33 a.h.)

104:50 Foundations of Recreation
104:81 Recreation Leadership
104:101 Leisure Research
104:105 Introduction to Therapeutic Recreation
104:106 Recreation Program
104:110 Administration of Recreation
104:118 Internship in Recreation
104:199 Internship in Recreation
27:56 First Aid

Area of Concentration (15-15 a.h.)

Community Recreation

For students preparing for positions in which they will be responsible for organizing and administering recreation programs, facilities and departments. This concentration is oriented primarily to municipal, district and county-level recreation and park departments.

Recreation Program Leadership and Supervision

For students preparing for leadership and program supervision positions with youth-serving agencies, settlement houses, armed forces and city park and recreation departments.

Required Courses

104:120 Park and Recreation Facility Management
104:155 Assessing Leisure Services
Plus three courses selected with adviser.

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 disadvan-
taged.

Required Courses

104:120 Orientation to Rehabilitation Settings
104:121 Orientation to Special Populations
104:129 Role of Therapeutic Recreation in Rehabilitation
Plus three courses advised with adviser.

Leisure Studies

For students preparing for graduate work or with a major interest in leisure research or leisure as a contemporary social issue, or with an interest in diverse fields of recreation, such as outdoor, industrial recreation, etc. It is the most flexible of all preparations, and makes the maximum use of courses outside of the recreation education program. It is also ideal for students wishing to obtain a minor in Recreation Education.

Required Courses

104:140 Principles of Outdoor Recreation
104:145 Readings in Leisure
104:146 Contemporary Issues in Recreation and Leisure
Plus two courses selected with adviser.

Internship Opportunities

The recreation education program places special emphasis on practical experience and student involvement with the profession...
and practices. Students are encouraged to attend art and national professional conventions, and every class in the major core includes lectures by working professionals, as well as opportunities for face-to-face related to course content.

The practical emphasis is enhanced by a professional internship in an agency and seeing the student's selection. The internship is designed to lead to professional placement. More than 50 departmental agencies and services throughout the state provide fieldwork and internship opportunities for students in the program.

Recreation Minor
Recreation education is an excellent minor for students majoring in elementary or special education.

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 20 of the 32 semester hours of required major course work and at least a 3.0 grade point average on all work attempted in the program. To graduate with honors in recreation education, the student must successfully complete eight semester hours of honors work and must pass an honors examination. With the permission of the chair of the honors committee, the student may take three semester hours of Honors work in another department.

Master of Arts Degree Programs
The master's program is designed to prepare students for administrative, supervisory, and teaching positions in recreation systems and universality. It offers two areas of specialization: community recreation administration and therapeutic recreation administration. It may be taken with thesis (33 s.h.) or without (38 s.h.). An introduction to advisory 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 modest contribution to knowledge, a review of a report or a synthesis or design in the park and recreation field.

Community Recreation Administration
Emphasis in this area is related to the development and administration of programs in various settings, such as municipal departments, school, voluntary agencies, churches, the armed forces, state and federal agencies, industry, private organizations, etc. The emphasis within these programs may be on special population groups, such as the inner city and poverty groups, the aged, children and youth, or upon the swelling of leisure as a social phenomenon with study directed toward the historical, philosophical, and social bases of leisure. Public administration and urban social planning are particular aspects of this area. To provide the emphasis, the program draws heavily from other disciplines, such as public administration, social work, urban and regional planning, sociology, geography, and psychology.

Therapeutic Recreation Administration
Therapeutic recreation relates to the development and administration of programs serving the mentally repressed, physically disabled, emotionally disturbed and aging in both institutional and community settings. The program is directed toward the conclusive understanding of recreation's role in a comprehensive rehabilitation program, including both clinical and community facets and thus prepare the student to work with a broad range of disability areas in either a medical setting or the community. Through the use of related area courses, strengths in specific disability areas may be developed.

Since 1987 the program has been accredited by the National Recreation Association. It is required that the person have an undergraduate background in 10-12 semester hours of credit in courses such as abnormal psychology, psychology of adjustment, anthropology, the mentally retarded, and aging. The student should also have skills in at least two program fields.

Financial Aids
Assistance is available in the form of graduate assistantships, research assistantships, teaching assistantships, and post- majors assistantships for doctoral candidates. This assistance is made available through the Department, as well, through a special program in Therapeutic Recreation Services for Handicapped Children.

Facilities
Student majors in recreation education have the opportunity to gain extensive experience in agencies, field work, and through independent research in these other locations: University of Iowa, Psychiatric Hospital and Hospital Schools, University Recreation Services, Iowa City Parks and Recreation Department, Systems Unlimited, various retirement and convalescence homes, and Coralville Parks and Recreation Department.

Courses
Primary for Undergraduates

104:101 Foundations of Recreational 1 s.h.
104:102 Introduction to Recreational Science 4 s.h.
104:103 Administration of Recreation Programs 3 s.h.
104:104 Social Aspects of Recreation 3 s.h.
104:105 Socialization in Recreation 2 s.h.
104:106 Retail and Industry 2 s.h.
104:107 Recreation and Society 2 s.h.
104:108 Leisure Research 2 s.h.
104:109 Recreation and Society 2 s.h.
104:110 Recreation and Society 2 s.h.
104:111 Recreation and Society 2 s.h.
The selection of the foreign language must be approved by the adviser.

Honors Program
Religion majors eligible for the Liberal Arts Honors Program may obtain an degree with Honors through satisfactory completion of an Honors essay during the senior year.

Graduate Programs
The School of Religion seeks to prepare a select and limited number of graduate students to become specialists in the study and teaching of religion. Graduate study is offered in five areas, including 13 fields: Jewish and Christian Scripture Old Testament New Testament Post-Biblical Judaism History of Christianity Early (to 1500) Modern (since 1500) American Theology and Ethics Jewish Roman Catholic Protestant World Religions History of Religions Intensive Study of Religion in India, China, or Japan Religion and Personality Religion and Personality Development RPijan and Health

Master of Arts
A score of 1500 on the GRE Aptitude Test and a GPA of 3.0 are ordinarily required for admission to the Master of Arts program.

The formal course requirement for the M.A. is 30 semester hours. Six semester hours of previously completed graduate study may be transferred toward the 30, with the approval of the student's advisory committee.

The student must demonstrate a reading knowledge of French or German, or of another foreign language which is related to his or her field of study and is approved by his or her advisory committee.

A thesis is also required. It need not be formally defended except when the student's advisory committee concludes it desirable.

Four hours of credit for thesis research may be applied toward the 30-hour requirement. M.A. candidates should obtain more detailed information from the director of the School.

Master of Arts in Religion and Health
The contemporary study of the function and dynamics of religion in illness and health necessitates a combination of theoretical and clinical investigation of human experience. The University Hospital provides the clinical setting for research and training in this program.

The program requires 30 semester hours of coursework. Four may be earned in thesis research. Six may be from another accredited graduate or professional school.

The program includes required courses in religion and personality, and in related fields of study and religions in America, together with other relevant courses. Knowledge of a foreign language, statistics, or another research test may be required, at the discretion of the student's advisory committee. In addition to the general requirements for admission to the Graduate College, the School generally requires an on-campus interview of applicants to this program; however, the interview may be conducted off campus by an accredited member of the Association of Clinical Pastoral Education.

Doctor of Philosophy
A score of 1100 on the GRE Aptitude Test and a GPA of 3.0 are ordinarily required for admission to the Ph.D. program.

The student may elect one of two options for doctoral study. In the first option, in consultation with the school of Religion faculty, the student develops a broad program which will give him or her a knowledge of three of the five areas in which the School offers graduate study.

Major written qualifying examinations covering coursework and reading lists of the three selected areas, provide an initial determination of the student's progress toward the ultimate objective of the doctoral program. Students who hold the Master of Arts degree in religion, or the Bachelor of Divinity or an equivalent degree, must take the qualifying examinations within two years after beginning the doctoral program. Other students must take them within three years after beginning the program.

Generally, students must pass the Graduate School Foreign Language Tests in French or German before being the qualifying examinations. In all cases, both tests must be passed at least 12 months prior to the comprehensive examinations.

If the student's program warrants it, and the faculty permits it, another language may be substituted for either French or German. There are also special language requirements in some areas. Students in the New Testament area, for example, must satisfy a requirement in Greek.

Not later than two months after passing all three qualifying examinations, the student and advisor must establish a three-member committee for comprehensive examinations. The committee will determine three subjects for the comprehensive examinations, including one subject closely related to the student's dissertation topic.

The plan of study for the comprehensive examinations must include ten semester hours of coursework at the 100-level or above outside the School of Religion with grades of "A" or "B." An semester hours of coursework in a field of religion outside the student's field of major interest, with grades of "A" or "B," and a maximum of three papers (writing that the student possesses the skills required for doctoral-level work in his or her field of major interest.

The student must pass an oral examination on the dissertation. No more than 12 additional credits of credit will be allowed for the dissertation.

A student whose grade-point average in graduate study at the University falls below 3.0 will be placed on probation. A student who does not bring the average up to 3.0 within one semester will be disqualified from further graduate study in the School of Religion.

A student choosing the second option pursues one of five separate programs: Judaism and Christianity in the Hebraic World History of Religion and Religions in the West Contemporary Theology and Religious Thought Social Religion and Other Academic Disciplines History of Asian Religions
The university of Iowa. It provides support, including a. summer, for four years for a student holding a B.A., and for three years for a student holding an M.A. or M.Div.

Students holding RAs, either 1/4- or 1/2-time, are awarded to students on the basis of superior academic performance, ordinarily, first-year students are not eligible. They are limited to half academic year, and are evaluated and renewed annually. Students holding RAs work primarily in the undergraduate core courses.

Students holding RAs are assigned to a particular professor to assist him or her with research projects. RAs are also awarded on a yearly basis, to enrolling and incoming students, 1/4- or 1/2-time, and reviewed annually.

Courses

Primarily for Undergraduates

32:1 Old Testament Survey

Genresses through I Samuel

32:2 Old Testament Survey

I Kings through II Chronicles

32:5 New Testament Survey

Literature of New Testament in its historical setting.

32:31 Introduction to Dilemmas

Principal teachings of the Catholic faith; historical and moral development of the Catholic Church. Development since Vatican II.

32:36 Role in Modern Culture

For undergraduate, major in religious studies. Cannot be counted for both major and core course requirement. Same as 11:26.

32:38 Religious Culture in Human Cultures


32:40 Livingston Religion of the West

Religion and thought traditions in the Western world, from ancient to modern. Includes Judeo-Christian, Hindu, Buddhist, and secular systems. 30:40.

32:41 Livingston Religion of the East

Religion and thought traditions in the Eastern world, from ancient to modern. Includes Buddhist, Hindu, and Islamic systems. 30:41.

32:45 Varieties of Religious Experience

Examination of the writings of representative Western thinkers on the nature of the religious experiences, together with scriptural and psychological interpretations of their experience. Lab: internet, labs.

32:72 Religions in American History

1867-1898

32:73 Religions in American History

1897-1918

32:74 Religions in American History

1917-1937

32:75 Religions in American History

1937-1947

32:76 Religions in American History

1947-1947

32:77 Religions in American History

1947-1947

32:78 Religions in American History

1947-1947

32:79 Theology of Liberation

Study of the interaction between several liberation movements and religions, and the resulting change in the understanding of the role and function of religion.

32:80 Religion and the Great for Peace

Attestation to the religious and cultural, and avenues for peace in selected religious traditions.

32:90 Jews and Judaism

32:91 Jews and Judaism

The history of the Jews and their system of belief from the biblical beginnings to the present day.

For Undergraduates and Graduates

32:100 God and Man in the Hebrew Bible

32:101 Biblical Anthropology

32:102 Introduction to Rabbinic Literature

32:103 Jewish Mysticism

32:104 Modern Jewish Philosophy

32:105 Introduction to the faith.

32:106 Introduction to the faith.

32:107 Paul

32:108 Paul

32:109 Introduction to the faith.

32:110 Theses of Paul

32:111 Biblical Hebrew I

Vocabulary, grammar, and orthography; selected readings.

32:112 Biblical Hebrew II

Proverbs: 32:111.

32:113 Readings in the Hebrew Bible

Selected readings.

32:114 Biblical Aramaic

Survey of grammatical and linguistic challenges present in the Aramaic of the Targums and other related documents.

32:115 The World of the Old Testament


32:117 Biblical Literature and Thought

32:118 Reading and interpretation of biblical texts

32:119 Reading and interpretation of biblical texts

32:120 Reading and interpretation of biblical texts

32:121 Reading and interpretation of biblical texts
Bachelor of Arts Program

Students who major in Russian must meet the general requirements for a degree in Liberal Arts and earn at least 26 semester hours of credit in advanced Russian courses:
- 41111-112 Intermediate Composition and Conversation 8 s.h.
- 41113 Advanced Composition and Conversation 3 s.h.
- 41117-112 Readings in Representative Russian Literature 6 s.h.

Three of the following:
- 41115 Russian Literature in Translation (1800–1880) 3 s.h.
- 41152 Russian Literature in Translation (1880–1937) 3 s.h.
- 41181 Soviet Literature in Translation 3 s.h.
- 41185 Russian Culture 3 s.h.
- 41191 Russian Civilization 5 s.h.

For a more complete area background, Russian majors are urged to include related courses in economics, geography, history or political science among their elective courses.

All students majoring in Russian are strongly encouraged to enroll in the one-semester course 41125 Phonetics and Prosodion. Instruction in business Russian may be arranged with the consent of the Professor by enrolling in 41108 Special Readings.

The requirements for a minor in Russian can be fulfilled by eight semester hours of third-year Russian.

The Honors Program

Russian majors of junior or senior standing with a grade-point average of at least 3.0 both in Russian and overall may enroll in the Honors Program in Russian. An extensive reading program with discussions, regular reports and a semester paper constitute each work unit of two semester hours. Students may take up to eight semester hours of Honors in Russian.

Summer and Study Abroad Programs

The Department regularly 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 and semester programs at Leningrad State University and the universities of the Council on International Educational Exchange. 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.

Master of Arts Program

The graduate program in Russian offers a major emphasis in either literary or language study.

The focus in literary studies is on the development of Russian literature, both as a national phenomenon and as a part of the European culture. Students are expected to analyze writer’s styles, substantive literary techniques, recognize literary influences, and develop the ability for sound criticism of form, content and language of works in all genres.

Students electing an emphasis on language studies focus on the historical development of Russian, in addition to advanced study of contemporary phonology, morphology, syntax and stylistics.

Candidates for the master’s degree must have completed the equivalent of the undergraduate major in Russian. Deficiencies in previous training may be removed by taking appropriate courses.

Candidates for the master’s degree are required to complete a minimum of 30 semester hours of graduate work, with or without thesis. The program consists of courses covering at least those which constitute an undergraduate major in Russian and should include courses in related fields such as comparative literature, history, philosophy and other languages.

Four to eight semester hours may be received for thesis unistration. The candidates must pass a written and oral examination. They must also demonstrate a passing knowledge of either French or German.

Financial Aid

Aid is available to graduate students in the form of fellowship scholarships, University fellowships, and teaching and research assistantships. It is awarded annually on a
competing basis to the best qualified applicants. Ordinarily teaching assistant-
ships are not awarded to first-year students, though exceptions are sometimes made on
the basis of advanced language skills. Applications are considered only from
students who have been accepted to the Graduate College. Inquiries should be
addressed to the departmental office.

Coursework for Nonmajors
The Department offers introductory courses in
the Russian language for students who
have specific language requirements. There are special reading courses designed to
give students from other fields an opportunity to acquire a reading proficiency in
Russian in either the social or natural sciences. A
scientific Russian course is offered for
students in sciences who need to develop
reading ability for research purposes. Some
classes are open to University students from
definitely departments and are open in English.
These include survey courses in Russian
literature, culture, and civilization, readings
in Soviet literature, and monograph courses on
Tolstoy and Dostoevsky.

Special Activities
Each year the Department presents several
guest lecturers and sponsored films.
Students sometimes put on Russian plays.
Russian Circle is an organization open to
graduates and undergraduates for social
activities. Participation in Russian Circle also
provides students with the opportunity to
practice speaking and to improve their
Russian with other members of the
Department.

The Language Laboratory
The University Language Laboratory pro-
vides facilities for language learning,
teaching and research. Equipment in the lab
includes standard and short wave radio,
tape recorders, record players, and CD

Courses
For Undergraduates and
Graduates

41:104 Elementary Russian
Prerequisite: 41:103 or equivalent.

41:105 Russian for Reading
Emphasis on reading academic and technical Russian materials; for students, suitability of reading material to
academic, professional, or research needs. May serve primarily to develop reading ability for research or
professional purposes.

41:106 Second-Year Russian
Prerequisite: 41:105 or equivalent.

41:108 Special Readings
Prerequisite: 18 semester hours of language instruction.

41:109 Intensive Conversation
Prerequisite: 41:108 or equivalent.

41:110 Intensive Conversation
Prerequisite: 41:109 or equivalent.

41:111 Intermediate Compositions and Conversations
Prerequisite: 41:110 or equivalent.

41:112 Intermediate Compositions and Conversations
Prerequisite: 41:111 or equivalent.

41:113 Advanced Compositions and
Conversations
Prerequisite: 41:112 or equivalent.

41:114 Advanced Compositions and
Conversations
Prerequisite: 41:113 or equivalent.

41:177 Russian Literature in Translation
Quaranteed in English.

41:181 Russian Civilization
Conducted in English. 3-3-3

41:199 Russian
May be repeated to a maximum of 8 s.h. Prerequisite: consent of Chair.
Graduate Programs

Certification Only

This is a special classification for graduate students who have earned teacher's degrees without fulfilling requirements for a teaching certificate. The requirements include fulfilling all science, history and philosophy of science requirements for graduation from the teacher education program in Science at The University of Iowa. In addition, the normal sequence of education courses results in 20 to 28 additional hours of credit. No degree objective is implied, although it is possible to request a change in graduate status. In such instances, the normal processing and faculty review would occur before any changes could be made.

M.A.T. in Science Teaching

This degree is designed primarily for persons who decide they would like to become teachers after they have completed a bachelor's degree. It features advanced work in science along with the courses required for certification. It is a means by which students can attain a master's degree and certification at the same time. (Other Science Education degree programs assume the candidate has already completed a certification program.)

M.S. without Thesis

This degree is the one most appropriate for teachers who plan to remain in the classroom. It is not a research degree and is not recommended for candidates who plan to continue their education beyond the master's level. It is a 32-hour program requiring 26 hours in the sciences (in preparation in the content fields where the teacher is assigned) and 12 semester hours of advanced work in science education.

M.S. without Thesis, for Elementary Teachers

This degree is similar to the one above and has the same general requirements, but is designed for persons with general preparation as elementary teachers who have not emphasized science as undergraduates. The primary difference is that courses in general science typically are used as one of the areas of science. The other area of science is also broadly defined, i.e., history of science, physical science or earth science.

M.S. with Thesis

This degree is appropriate for candidates who plan to continue for the specialist degree or the Ph.D. It features a thesis which can emphasize a problem in science education. If it is scientific research, the candidate must locate an appropriate professor in the science field to coordinate the thesis work. The program includes 30 semester hours, of which 15 hours must be completed in science education and 20 hours in two fields of science.

M.S. for Science Supervisors

Since the needs of supervisors of science are often unique, a special program of required courses is outlined. Although this degree could be with thesis, most candidates find it desirable to complete additional coursework in lieu of the formal thesis. Nonetheless, research and work with program evaluation are required. Such pilot studies, which must take place prior to results, usually center upon very practical curriculum problems. The special M.S. degree comes with all the qualifications of the regular M.S. degrees. However, there are fewer electives required for this program, since special supervisory courses and experiences are required. (Problems remain in Iowa for special endorsement and certification as a supervisor without meeting all requirements for endorsement as a principal. However, other states have offered such certification in completion of the program as outlined.)

Professional Improvement

This is a special status for graduate students who wish to complete additional coursework without a further degree objective. Students so classified must be formally accepted as

P.I. students and must meet regularly with an advisor. At the same time, there is great latitude in the types of courses and individual instruction sequences that are possible. Many students interested in special workshops, seminars, conferences and institutes are admitted as students in this category. If such students later apply for a degree at a later time, all credit completed while accepted for P.I. must be evaluated and the application is reviewed as if it is a new one for admission purposes.

Educational Specialist Degree

The E.S.D. is an intermediate degree between the master's and the Ph.D. degrees. It is recommended for supervisors, state, regional or local as well as for instructors in community colleges and/or small four-year liberal arts colleges. The degree consists of 60 semester hours of work beyond the bachelor's degree, of which 28 semester hours are in supportive science, 10 semester hours in related fields and 22 semester hours in science education (including research and internship credit).

Doctor of Philosophy

This degree is available to qualified candidates who aspire to college and university positions as science educators; major supervisory posts in national, state and local systems; positions as teachers of the various science courses in colleges and universities; or as instructors of general education science courses at major colleges; positions as research directors in science education, and coordinators of allied health and engineering education programs. Two-thirds of the work is in two areas of science, with one-third centered in education.

The Ph.D. candidate in science education is expected to complete two tools of research before taking comprehensive examinations. These can be satisfied: before degree candidacy or during the first registrations for coursework which is more directly a part of degree requirements. The tools of research may be fulfilled by the candidate in science education by establishing competency in two of the following:

Statistics (six semester hours of graduate work);

Computer programming and/or data processing;
Research design in science education (comprehension of pile entity); and competency in French, German or Russian.

The program adviser is charged with certifying competency in the two tool areas.

Special Programs
A philosophy and history of science program as it relates to scientific literacy and science teaching is a special facet of the Science Education program at Iowa. The extensive program for motivated and high-ability secondary school students is another unique feature.

The foundations of science program is a course sequence providing science courses for nonmajors. It involves 500 students per year. Unique elementary and secondary education programs are sponsored by the science education programs with the College of Liberal Arts and the College of Education.

Iowa-STEP is a federally-funded program developed and operating at the University. Some of the unique features of Iowa-STEP model include: a professional-quality sequence for undergraduates closely linked to the science major and general education requirements; a philosophy and history of science component; a program that is largely field-based; early identification of pre-service-teachers through a Secondary Student Training Program (SSTP) experience; and an in-service component designed to rekindle curriculum revision in Iowa schools.

Iowa-ASSIST is a special program in science education which involves 600 in-service teachers each year in special curriculum revision and implementation efforts. Summer and academic year workshops provide the basic modes of operation for the program. Associated with Iowa-ASSIST is a materials center which provides printed and laboratory materials for workshop and school program implementations.

Special Facilities
The physical facilities for science education programs at The University of Iowa are exemplary. The Science Education Center is located in the new Physics Building near the center of the campus. The Science Education Center consists of the seventh, fourth and part of the third floor of the east wing (the instructional laboratories) of the Physics Building.

The main office of the Science Education Center is located on the fourth floor. Other general facilities on the fourth floor include a photographic laboratory, a departmental conference room and a library and counseling center. A suite of offices for the student program activities is also located here. Also included is space for the elementary school focus of the program. Instruction space includes a methods laboratory for the elementary school science methods course and two large teaching laboratories for the foundations of science sequence.

Facilities on the third floor include an interactive curriculum development and secondary methods laboratory, a curriculum and material resources center, and an office for coordinating Iowa-ASSIST. Iowa-STEP in-service program for assisting schools with implementing new national curriculum programs in Iowa schools. A Resource Center, including both living and expendable materials, is also located here.

The seventh floor includes central offices for the history and philosophy of science facet of the science education program at Iowa and for the secondary school teacher education program. A self-instructional laboratory including laboratory and audio-visual materials is located here; also a large seminar room used as an instructional center for some of the secondary teacher education sessions, including many facets of Iowa-STEP model. The seventh floor also includes multiple offices for graduate assistants, a common area for small-group discussions and individual work, and two large areas for small-group and committee work.

Financial Aid
Ten teaching assistantships are available, usually for Ph.D. candidates. Five research assistantship are also available for qualified graduate students. At least ten administrative and service assistantships are also available for qualified graduate students.

Courses

For Undergraduates

57-70 Investigations in Science

57-75 Physical projects in science for high-ability secondary school students. May be repeated for credit.

57-85 Science Survey

Experiences in laboratories where science and technology are examined; individual projects in three or four major areas are presented. Permission of the University supervisor provides for course credit.

57-86 Science Surveys

Experiences in laboratories where science and technology are examined; in-depth field trips for elementary education laboratories for the foundations of science sequence.

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Financial Aid
Ten teaching assistantships are available, usually for Ph.D. candidates. Five research assistantship are also available for qualified graduate students. At least ten administrative and service assistantships are also available for qualified graduate students.
QUALITY are encouraged to do their Honors work in the social science department in which they wish to concentrate their work.

Admission Requirements

Students wishing to major in social studies education must have permission of the advisor. Transfer students must have earned a minimum grade-point average of 2.0 on all work done in the subjects of the seven cooperating departments to be admitted to the program. Approval of candidacy for the bachelor's degree will be granted only to students who have a 2.5 grade-point average in all college work undertaken in the cooperating departments.

Master of Arts

The interdisciplinary nature of the Master of Arts degree in social studies education is of special interest to classroom teachers in secondary education, to instructors in junior and community colleges, and to educators wishing to concentrate in social studies curriculum and instruction.

Undergraduate Program

The major in social studies education is a broad, interdisciplinary nonprofessional major. It provides an excellent foundation for careers in law, social work, religion, urban planning and development, and government service at all levels. Its major purpose is to provide a broad, comprehensive education for students preparing to teach in secondary schools. Together with the professional requirements for certification, this major meets the standards established by the North Central Association of Colleges and Secondary Schools.

There is a good deal of flexibility in the program, and in consultation with an advisor, it can be tailored to the needs and interests of the individual student. All of the coursework is taken within the seven cooperating departments.

The B.A. in social studies consists of a total of 60 semester hours, including: 12 semester hours in history; 12 semester hours each in economics, political science, and sociology, a minimum of three semester hours in geography; and nine semester hours in geography, anthropology or psychology. Students pursing a social studies education major will be engaged in survey courses introducing them to the various social sciences. But many of the departments offer independent study and readings as alternatives to formal classes.

There is no separate Honors Program in social studies education. Students who

"Social Studies Education

Chair: John R. Hatcher
Faculty professors: John R. Hatcher, Robert M. From
Degree offered: B.A., M.A., Ph.D.

Graduates of this program are classroom teachers and chairs of social studies departments in junior and senior high schools. Some are serving as curriculum consultants for school districts, while others are staff members in community colleges. A few have found the degree excellent preparation for their professional work in various correctional and penal institutions. For a small number, the master's program has provided access to civil service positions at various levels of government.

In the master's program, the candidate may elect to take the degree with or without thesis. Both plans require a minimum of 36 semester hours, distributed in one of two ways.

In Plan A, the candidate completes at least 10 semester hours of coursework in each of the seven cooperating departments: Anthropology, Economics, Geography, History, Political Science, Psychology and Sociology. The remaining eight semester hours may be taken in one of the three departments, or distributed among them.

In Plan B, the candidate does his or her work in two of the cooperating departments and in the College of Education. Under this plan, the student takes a minimum of 10 semester hours in each of the two social sciences he or she has chosen, and a maximum of 10 semester hours in education. The remaining eight semester hours may be taken in one of the social science fields or be distributed between them.

B.A. plans require a minimum of nine semester hours in graduate courses numbered 200 or over. Each such course must be taken in each of the three fields included in the program.

Comprehensive examinations are required. The written portion consists of a six-hour examination over the fields in which the candidate has distributed his or her work. The oral portion is conducted by the candidate's committee as a whole.

Candidates in this program may have a wide variety of educational experiences, depending on the fields of study chosen. Small group instruction, seminar work, independent study and research, experience with computers, internships and laboratory work are among the possibilities.

Doctor of Philosophy

Graduates with a doctorate in social studies education can be found in a variety of professional positions. Some have gone into administration in institutions of higher education and are serving as presidents, provosts or deans of faculty or graduate studies. Some are department chairs in colleges of education or curriculum directors in large school districts. Many are engaged in teacher education programs in colleges and universities. Quite a few are college instructors in their area of academic concentration.

The emphasis in the doctoral program is on both teaching and research, but there is a broad and thorough grounding in all of the academic areas chosen from history and the social sciences, and specialization in some aspect of educational practice.
The program consists of a minimum of 90 semester hours of coursework and dissertation credit beyond the bachelor's degree and exclusive of tool requirements established by the College of Education. These credits are to be distributed among two of the cooperating disciplines: anthropology, economics, geography, history, political science, psychology or sociology—and professional education. Depending upon the background and needs of the candidate, work in the two disciplines chosen will comprise between 60 and 75 percent of the total 90 semester hours, work in education between 25 and 40 percent.

Depending upon the areas of study chosen by the candidate, there will be opportunity for regular class work, small group instruction, internship, independent study, field work and laboratory and computer science. Seminar and advanced work in courses numbered 200 or above is required in each of the three areas of study. After most of the coursework has been completed, a qualifying examination of approximately one hour—normally three hours in each field of study—is required. When the dissertation has been completed, the candidate will defend it orally.

The research problem may be in either of the two academic fields chosen for study, or it may be related to social studies education.

**Admission Requirements**

Candidates for the doctorate in social studies education who have earned a bachelor's degree in history or one or more of the social sciences at an accredited institution, and a master's degree in history, a social science or education are also required. It is expected that performance on the Graduate Record Examination be satisfactory, and that the academic record of the candidate give promise of scholarly success.

**Special Facilities**

Students in social studies education have access to the facilities and faculty of the cooperating departments, 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 Information Center, the Curriculum Laboratory, the Statistical Laboratory, the Reading Clinic, the Computer Center, and other facilities.

The faculty members who serve as social studies education advisors and coordinators are experienced classroom teachers whose advanced degrees have been earned in history, the social sciences and education. They cooperate in preparation of research proposals, consultative work and in working with schools in curricular revision.

**Courses**

Courses undertaken for social studies education degrees comprise a body of courses in the following disciplines: social sciences (sociology, economics, geography, history, political science, psychology), education and the College of Education. However, courses for advanced degrees must complete at least 50 percent of their course work in social studies courses.

**98:700-799: Suggested sequence in Social Studies Education**

<table>
<thead>
<tr>
<th>Year</th>
<th>Course Details</th>
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<tbody>
<tr>
<td>1st</td>
<td>Individualized readings, field studies and technical projects. Focus in history and social sciences, at a problems relevant to怪．．．</td>
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</tbody>
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**Social Work**

Director: Ruth A. Gremel

Postdoctoral Program Coordinator: Thomas H. Webb

Program Assistant: Verona Z. Dick, Sheryl Sidle

The Department of Social Work and related programs in history, social sciences and social work education must be taken in a sequence: Papers 19-797.

**Social Science**

Director: Ruth A. Gremel

Postdoctoral Program Coordinator: Thomas H. Webb

Program Assistant: Verona Z. Dick, Sheryl Sidle

The Department of Social Work and related programs in history, social sciences and social work education must be taken in a sequence: Papers 19-797.

**Undergraduate Program**

The undergraduate program in Social Work is intended to provide basic preparation for direct entry into social work practice. In the context of a broad liberal arts education, the program focuses on general practice in social work, rather than specialization. It encompasses several major areas of social science education: open to persons with the A.B. degree (e.g., aspects of public welfare, family and children's services, health, corrections and certain group-serving organizations): establishment of a base for graduate study, especially in social work, provision of knowledge for use in allied professions; and broad preparation for informed community participation.

The program is approved by the Council on Social Work Education.

**Requirements**

Undergraduate students majoring in social work must satisfy the general College of Liberal Arts requirements, excluding the social science core. The courses required are major:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>341 Introduction to American Politics</td>
<td>4</td>
</tr>
<tr>
<td>342:100 Understanding Political Research</td>
<td>3</td>
</tr>
<tr>
<td>343:1 Elementary Psychology</td>
<td>4</td>
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<tr>
<td>343:3 General Psychology</td>
<td>4</td>
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<tr>
<td>344:1 Introduction to Sociology: Principles</td>
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<tr>
<td>344:2 Social Work</td>
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<tr>
<td>344:3 Social Work Practice</td>
<td>3</td>
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<tr>
<td>344:4 Human Behavior in the Social Environment</td>
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<tr>
<td>344:5 Social Welfare-Program and Policy</td>
<td>3</td>
</tr>
<tr>
<td>344:6 Social Work Research</td>
<td>3</td>
</tr>
<tr>
<td>344:7 Social Work Process</td>
<td>3</td>
</tr>
<tr>
<td>344:8 Field Experience</td>
<td>7-8</td>
</tr>
</tbody>
</table>

A minimum of 12 semester hours of coursework is required in one department listed below in group A or B and nine hours in the other two groups. Each student selects either sociology or psychology for the 12-hour requirement. One of the social science courses listed above can be applied toward this requirement, if the choice for the 12 hours is in that social science. A. Social Sciences

Anthropology

Economics
Honor in Social Work

The School of Social Work has an Honors Program leading to a Bachelor of Arts with Honors in Social Work. Students interested in such a program should contact the School of Social Work.

Admission

Admission to the undergraduate program in Social Work requires:

Completion, with at least a C grade, of the introductory course (42-150), which can be taken no earlier than the sophomore year.

At least a 2.25 grade-point average on a 4-point scale; and

Completion of the application process.

For more information, contact the coordinator of the undergraduate program in Social Work.

Graduate Program

The Master of Social Work degree requires at least 52 semester hours of credit in graduate courses approved by the School of these, at least 28 semester hours must have been earned after admission to the School of Social Work at The University of Iowa. Students who have completed an accredited undergraduate major in social work are eligible to qualify to the degree with 40 semester hours. Application of this 12-credit reduction will be negotiated with the student's advisor.

After satisfying first-semester foundation requirement or their equivalent, students may choose one of the three concentrations described below, or may choose a "generalist" program.

Students who elect a concentration must take 12 semester hours of courses in that concentration, plus a minimum of four hours in each of the other two concentrations.

Students who elect the generalist program must take at least four hours in each of the three concentrations, plus various electives. Courses in other departments may also be included in the concentrations. Concentrations will be modified periodically; applicants should secure a current description of the program.

Personal and Family Services prepares practitioners for direct service to individuals, families and small groups. Content includes study of functional and dysfunctional behavior, theory and practice of treatment modalities, theory and research methodology as applicable to direct services, values and ethical questions, and contemporary issues in service delivery.

Organization of Human Services prepares students for administrative positions in social service organizations. Content includes administrative processes, planning, consultation and organizational development. Students examine operational practices, the interaction of organizations in the community, evaluative methods, and alternatives in organizing. Topics include administration, community organization, teaching, supervision, and planning.

Social Development/Alternative Futures focuses on social change processes directed toward a society based on humanistic value assumptions. It explores alternative social policies and socioeconomic political systems. It is an interdisciplinary study of personal, small group, and institutional change both domestically and internationally. Topics include appropriate technology, world futures, social planning, community development, and organizational change.

Students normally take one semester of full-time classroom work on the Iowa City campus, followed by three semesters of concurrent practicum and classroom work. An alternative plan is two semesters of full-time coursework followed by a three-semester placement of 6-8 months. Some students remain in the Iowa City-Cedar Rapids area for the entire program, but most students are assigned to either the Des Moines or Davenport centers for the final three semesters. This normally involves relocat-

Continuing Education

Extension courses are offered in each Edgewood Center, and other communities as well. A revision to the M.S.W. program is not a prerequisite for enrolling in extension courses. Enrollment may be limited.

Joint Degree Programs

Twelve credits of the social work program can be applied to a joint degree in either urban and regional planning, if admission to those programs is approved through separate application. Joint degree programs with other departments may be explored. The School of Social Work should be advised well in advance of the student's intention to pursue joint degrees.

Special Features

The School provides a physical and social milieu that supports a people-centered approach to professional education. Included is a strong commitment to student participation in School governance. For students with specialized interests, the School administers a Gerontology Center, a Regional Child Abuse Center, a Nerral Training Home-Based Services to Children, and an Institute for Social Development.
Courses

Primarily for Undergraduates

4211: Helping Individuals and Families 3.0
Introduction to relevant factors in counseling persons and families. Self-development at a basic level. Intended for psychology and others without formal social work training. No prerequisites.

4210: Social Work 3.0
Sociological and social historical settings and methodologies of social work practice, personal social work development of American social welfare and social work. A minimum of 60 hours of volunteer work required for practicum work majors. Not applicable toward the 5-9 M.S.W. Practica: evening attendance or consent of the instructor. Same as 54-102.

4215: Social Work Practice 3.0
Practicum of social work experience supervised by social workers with individuals, groups and communities: interviewing and advanced communitarian skills; simulation of intake; theory. Prerequisites: 4210; 4351 and 4352. Consents 4219.

4219: Individual Study 3.0
Junior and senior individual study, carried out under direction of faculty member, sometimes including group interaction. May be repeated.

4209: Human Sexuality 3.0
Behavioral individual research. May be repeated. Prerequisite: admission to the Honors Program.

4210: Field Experience 3.0
Supervised experience in selected social welfare agencies and organizations; requires a minimum of 300 hours in agency participation for 3 credits, 480 hours for 4 credits. Prerequisites: 4210; 4211, 4212, and senior standing or consent of instructor. Consents 4216.

4214: Social Welfare Issues 2.0
Social welfare problems, issues, innovations and trends.

For Graduates and Undergraduates

(Course with number provided by students will not be included in the M.S.W. Program.)

4211: Legal Foundations of Social Welfare 2.0
Historical and political development of the social welfare system; legal aspects of legislation; the English Poor Laws, progress of social service groups in the late 19th and early 20th centuries; through social work: introduction to community organization; social work and community organization; need-based needs of the group. Same as 1711, 1714, 4714, 7101.

4213: Social Work Practice in Mental Health 2.0
Overview of the historical development of Community Mental Health, emphasizing the Ohio Act of 1966: social context of CMH, study of needs and objective services; introduction to the mental health / mental health services; principles and approaches to mental illness and mental health.

4219: Social Work and Social Stabilization 3.0
Examination of policies and issues related to discrimination against various subgroups within American society, such as ethnic minorities, women, children, physically handicapped, mentally retarded, and homosexuals.

4215: Social Work Practice in Public Social Welfare 3.0
Types of services which occur in the public social service area: family services; supervision of child care center programs in the University District; management and operation of a residential and medical care facility. Prerequisites: 4215, 4219, or graduate standing, or consent of instructor.

4216: Child Care Centers: Development and Administration 2.0
Development of child care centers from historical and social welfare perspectives; children's behavior and the nature of child care services. Course requires 6 hours of child care programs and administration. Prerequisite: permission of instructor.

4218: Group Work Practice 2.0
Group dynamics, group change, and group processes. Other significant variables as they pertain to both group-centered and personal change goals. Concepts are related to membership in and to management concerns of the group. Same as 4210, 4211, and 4212, or equivalent.

4217: Social Work and Research 2.0
Examination of statistical methodology, methods, and techniques of mental and social work research. Same as 54-102, 54-103.

4219: Statistics and the Social Sciences 2.0
Practicum in social work research methods. Use of social research materials, techniques of mental and social work research. Same as 4210, 4211 and 4212.

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Examination of statistical methodology, methods, and techniques of mental and social work research. Same as 54-102, 54-103.

4219: Statistics and the Social Sciences 2.0
Practicum in social work research methods. Use of social research materials, techniques of mental and social work research. Same as 4210, 4211 and 4212.
Joint Program in Sociology and Law

A student may obtain a Master of Arts in sociology and a J.D. by fulfilling the basic requirements of both programs. The College of Law will credit up to 12 hours of graduate work taken after entering the joint program toward the 90 hours required for the J.D., even though those hours are also credited toward an M.A. in sociology. At the discretion of the student's M.A. committee, the Department of Sociology may credit up to 12 hours of law toward the M.A. degree. This cross-creditting allows a student to receive the J.D. and the M.A. by taking less coursework than would be necessary if the two degrees were pursued independently. This program is highly individualized and allows the student to explore various aspects of the relationship between law and society.

Doctor of Philosophy

The Doctor of Philosophy degree in sociology requires a minimum of 72 semester hours of graduate-level coursework, including the post-M.A. courses 34:216 Intermediate Statistics and Data Analysis and 34:217 Theory and Research Design; comprehensive examinations; and a dissertation.

All doctoral candidates are examined in the basic tool areas of sociology—theory, history of theory, methodology and statistics. In addition, each is asked to show competence in one major and one minor area chosen from among the areas currently represented on the faculty, such as social psychology, deviance criminology, family, social stratification, organizations, theory, methods and statistics.

A detailed statement of regulations for graduate study is available upon request. Prospective doctoral candidates should carefully examine this statement.

Graduate 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. In addition to the Graduate College procedures, the applicant completes a departmental application statement and uses its personal reference forms in obtaining three letters of recommendation. Applications can be submitted at any time, but should be completed two months before the start of the academic session for which admission is requested. The deadline for applying for departmental financial support is March 1.

Admission decisions are based on a composite consideration of prior academic performance, personal reference letters, scores on the Graduate Record Examination and the applicant's statement of reasons for pursuing advanced work in sociology. For admission there is no specific coursework expected as an undergraduate, 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. Inquiries concerning admission should be directed to the 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 3.5 and a total score of 1000 from the quantitative plus verbal sections of the Graduate Record Examination. Enrollment in this program is currently limited to five admissions per year. A handbook is available at the Department office.

Graduate Financial Aid

The Department of Sociology offers three types of awards to graduate students: teaching assistantships, research assistantships and teaching-aideships. Teaching assistantships are awarded to graduate students who agree to work at least 20 hours per week. Research assistantships are awarded to students who agree to work at least 20 hours per week. Teaching-aideships are awarded to students who agree to work at least 20 hours per week.

Special Facilities

The Department maintains a card punch, two terminals for communicating with the University's main computer (IBM 360/65 and CYBER 720), and a terminal for access to one of the University's Honeywell-Packard 2000F educational computers. Also available for faculty and students are the facilities of the Center for Research in Interpersonal Behavior (CRIB), a data archives unit, and the Iowa-Computer Research Center (IURC). The
34:127 Social Forms and Interaction 3 s.h.
Elementary social forms and processes; special emphasis given to the study of interaction in various social contexts. Prerequisite: 34:130.

34:128 Interpersonal Perception 3 s.h.
Problems of self-presentation and the regulation of social identification; impression formation from action and role-related behavior; assessment of intentions, motive and attitude, perception of personal causality. Processes of role-taking and role-playing in perceiving and evaluating others. Prerequisite: 34:130 or consent of instructor.

34:128 Development and Control of Aggression 3 s.h.
Analysis of the social factors contributing to the development of interpersonal aggression, the circumstances underlying aggression and the social mechanisms for regulating aggression. Prerequisite: 34:127 or 34:128.

34:129 Intellectual Conflict 3 s.h.
Use of formal logical theory and research to analyze complex social phenomena. Socialization and conflict resolution.

34:130 Social Psychology of Deviance and Conformity Problems 3 s.h.
Abstractocial issues and community reaction as studied in terms of the deviant process and the recovery process. Field experiments, case-studies and various natural observation techniques. Open to advanced undergraduates and graduate students. Prerequisite: 34:128 or consent of instructor.

34:133 Contemporary Approaches to Social Psychology 3 s.h.
Review and critical analysis of current theoretical, descriptive, and experimental applications. Prerequisite: 34:128 and departmental standing as major or minor student in social psychology; other students by consent of instructor.

34:231 Seminar: Selected Topics in Social Psychology 3 s.h.
Critical study of major topics in social psychology. Selections of topics to be announced; students may repeat. Prerequisites: advanced graduate standing and consent of instructor.

34:234 Research Problems in Social Psychology 2-4 s.h.
Guided research on selected topics in social psychology. May be repeated. Prerequisite: consent of instructor.

Deviance and Control

34:140 Deviance 3 s.h.
Nature of deviant behavior; the deviant role; deviant correction and crime prevention. Prerequisite: 34:127 or 34:128, or consent of instructor.

34:141 Juvenile Deviation 3 s.h.
Comparative analysis of deviant and sub-cultural phenomena, theories of delinquency causation, social class and the juvenile court system, treatment of delinquency. Prerequisites: 34:127 or 34:128, or consent of instructor.

34:142 Sociology of Corrections 3 s.h.
Analysis of the causes of crime and the nature and function of the criminal justice system. Prerequisite: 34:140 or consent of instructor.

34:146 Deviance and Control 3 s.h.
Basic theories of deviance and analysis of social control settings and mechanisms with emphasis on the relationship between social control efforts and social deviance. Prerequisite: 34:140 or 34:141 or consent of instructor.

34:147 Prevention of Crime and Delinquency: Strategies and Preventions 3 s.h.
Analysis of crime population; strategies in the areas of crime and delinquency including problems in tactics, theory and methods of intervention. Prerequisites: 34:140 or 34:141 or consent of instructor.

34:148 Internship in Criminal Justice and Corrections 1-4 s.h.
Supervised internship in a criminal justice or corrections agency with formal exposure to practice of law and field experience. May be repeated. Prerequisite: consent of instructor major in sociology, junior or senior status, and 34:140 or 34:141 or consent of instructor.

34:149 Sociology of Crime, Social Justice, and the Courts 3 s.h.
Modern society and its relationship to the study of crime. Analysis of the social sciences, social policies, and social programs. Prerequisite: 34:127 or 34:128, or consent of instructor.

Family, Socialization, and Society

34:158 Sociology of Sex Roles: Introduction to Women's Studies 3 s.h.
Designated as a basic social science core course to meet the needs of students in sociology, political science, psychology, and other social science areas. Prerequisite: 34:127 or 34:128, or consent of instructor.

34:158 Aging and Society 3 s.h.
Sociological age structure, age differences, and social policies regarding aging. Prerequisites: 34:127 or 34:128, or consent of instructor.

34:158 The Family in Various Societies 3 s.h.
Preliminary introduction of early and historical perspectives. Comparison of the American family with families in both modern and primitive societies. Prerequisites: 34:127 or 34:128, or consent of instructor.

34:158 The American Family 3 s.h.
Structure and process; change; the life cycle; interactions with other institutions; historical changes, variations in race, class, and ethnic group. Prerequisites: 34:127 or 34:128, or consent of instructor.

34:182 Couplehood, Marriage and Alternative Life Styles 3 s.h.
Sex roles and peer-group interaction; power, conflict and socialization in marriage; the dual-career family; voluntary childlessness, celibacy. Emphasis on current theory and research. Prerequisites: 34:1 or 34:128, or consent of instructor.

34:183 Processes of Socialization 3 s.h.
Examination of the general mechanisms and processes of socialization, including adolescent and adult patterns: attention and prior alternatives. Emphasis on sociological theory and research. Prerequisites: 34:1 or consent of instructor.

34:184 Socialization of Children 3 s.h.
Learning and interactional mechanisms between family and child from infancy through youth adolescence. Prerequisites: 34:1 or consent of instructor.

34:185 Aging and Human Development 3 s.h.
General overview of aging and socialization. Theory on the aging processes; age stratification, social change, the life course, the aged as a social problem; examination of selected topics and theoretical and methodological issues. Prerequisite: graduate standing in a social science department or consent of instructor.

34:186 Seminar: Selected Topics in Family Building 3 s.h.
Selected medical and psychological methods. May be repeated. Prerequisites: advanced graduate standing and consent of instructor.

34:186 Seminar: Selected Topics in Social Change 3 s.h.
Specialized and interdisciplinary methods. May be repeated. Prerequisite: advanced standing and consent of instructor.

Social Institutions and Social Change

34:210 Social Institutions and Social Change 3 s.h.
Strong emphasis of institutional sociology and sociological methodological as applied to social change. Prerequisites: 34:127 or 34:128.

34:210 Social Work 3 s.h.
Social welfare as a social science; setting and development of the social work profession, the role of the welfare system in modern society. Departmental standing as a major or minor in sociology or consent of instructor.
34.188 Sociology of Medicine

3 a.h. Introduction to and expanding field of medical sociology: disease and the sick, health practices and professionals, health institutions (the hospital), the cost and organization of health services, medical education. Prerequisites: 341 or 342 or 343 or 345 or consent of instructor. Same as 34.182.

34.192 Sociology of Religion

3 a.h. Conservative study of religious beliefs and practices; bases of social organization: social consequences in Western societies. Prerequisites: 341 or 342 or 343 or 345 or consent of instructor. Same as 34.186.

34.194 Sociology of Popular Culture

3 a.h. Analysis of the sociological aspects of popular culture: mass media, mass culture, subcultures, lifestyles, social change. Prerequisites: 341 or 342 or 343 or 345 or consent of instructor. Same as 34.196.

34.195 Sociology of Art

3 a.h. Art and communication, the social role of the artist, questions, the social definition of the arts, the arts in the university. Same as 34.194.

34.202 Seminar: Sociology of Religion

3 a.h. Current sociological theory of religion; critical examination of contemporary conceptual and methodological alternatives in the study of religious phenomena. Same as 34.186.

34.250 Education and Social Change

3 a.h. Focus on the role of educational institutions in connection with political and economic structures in the process of social change; illustration of theories of social change through case studies of educational systems in both the United States and Europe. Same as FY 0729.

34.252 Seminar: Medical Sociology

3 a.h. Theory and research on health institutions in modern society: medical technologies of disease, health policies, social change in the health system. Prerequisites: graduate standing and consent of instructor.

34.290 Seminar: Communication and Change

3 a.b. Sociology of modern society: changes, talk, gender, identity, innovation, institutions, mass media and organizations, relational organizations and evolutionary organizations. Prerequisites: 341 or 342 or 343 or consent of instructor.

Community and Population

34.178 Population and Society

3 a.b. Sociological theoretical analysis of population processes: size, composition and distribution; the role of population in modem society and its relationship to welfare, impact trends in social change; population concerns and policies. Prerequisites: 341 or 342 or 343 or consent of instructor. Same as 34.172.

34.172 Social Dynamics of Urban Life

3 a.h. Major urban problems in contemporary urban sociology; the Chicago school, urban growth and social change, comparative urban studies, third world cities, the urban ghettos in the U.S., and myths and reality of suburbs. Prerequisite: 341.

34.174 World Population Problems

3 a.b. World population trends and pressures; their causes and consequences by country and social sector; cultural correlates in migration patterns and fertility planning. Prerequisites: 341 or 342 or 343 or 345 or consent of instructor.

34.175 Introduction to Demography

3 a.b. Principles and techniques of understanding the demographic characteristics of naturally increasing populations, emphasis on both temporal and spatial demography. Prerequisites: 341 or 342 or 343 or 345, or consent of instructor.

34.176 Problems of Community Organization

3 a.b. Functions of organizations, social groups, voluntary associations and their role in redefining patterns of community life. Prerequisite: 341.

34.213 Seminar: Community-Building

3 a.h. Development of theme of "community" and design for a community-building workshop at the Pilsen site in Chicago. Prerequisites: consent of instructor.

34.215 Urban Growth in Developing Countries

3 a.h. Cross-cultural and interdisciplinary analysis of problems related with urbanization and development in the developing nations; research; graduate standing in a social science. Same as 110275, 120275, 420275, 920275.

34.216 Seminar: Urbanism

4 a.m. Problems growing out of the increase in urban population and the relative decline in rural population; problems on love and the middle West. Prerequisites: graduate standing and consent of instructor. Same as 190301, 305031.

Stratification and Organizations

34.162 Political Sociology

3 a.b. Sociological analysis of political behavior and belief, group interaction and political process, government, political institutions, power and authority relations and impact of political system on the social system. Prerequisites: 341.

34.164 Education, Race and Ethnicity

4 a.m. Examination of the role of education in ethnic and racial stratification in the United States and other nations; examination of the influence of racism in family structure, socialization patterns and institutional constraints in the formation of educational aspirations and academic achievement. Same as 10275, 40275, 90275.

34.166 Race and Ethnic Relations

3 a.b. Multidisciplinary study of intergroup relations with special emphasis given to Indian relations, sociological, and some psychological issues in the study of American minority relations. Prerequisites: 341 or 1201.

34.168 Economic Sociology

3 a.h. Describes what is generally known as "rational" in economic behavior and thought; role of institutions and social factors in economic process. Prerequisite: 341 or 1201.

34.176 Sociology of Education

3 a.b. Emphasis in educational sociology and social psychology; study of the education of the American minority population. Prerequisites: 341 or 1201. Same as 110275.

34.177 World-Society of Education

3 a.h. Theoretical and empirical study of modernization, socialization, integration, and the development of educational systems across the national boundaries; emphasis on non-Western systems of formal schooling. Same as FY 0727.

34.182 Organizations

3 a.b. A sociological and historical study of economic and noneconomic organizations; the role of power and authority within the organization and between the organization and its environment. Prerequisites: 341 or 342 or 343 or consent of instructor.

34.183 Occupations and Professions

3 a.b. Work commitment, prestige of occupations, occupational and professional roles; occupational groups and organizations, evaluation, females, minorities, and transnational structures capital and association. Prerequisites: 341 or 342 or 343 or consent of instructor.

34.185 Social Inequality

3 a.b. Major theoretical perspectives providing understanding of human, social, and economic stratification; conditions of social inequality. Prerequisites: 341 or 342 or 343 or consent of instructor.

34.210 Seminar: Political Sociology

3 a.h. Selected topics in political sociology.

34.212 Urban Sociology

3 a.h. Cross-cultural and contemporary themes on stratification; current research on the causes and magnitude of inequality on the economic, power and prestige dimensions, social stratification, and the role of class and social inequality in stratification; research; graduate standing.

34.214 Methods of Social Research

3 a.b. Methodological techniques and issues in the study of social stratification. Prerequisites: 342 or consent of instructor.

34.215 Seminar: Social Stratification

3 a.b. Selected theoretical and methodological issues in social stratification. Prerequisites: 342 or consent of instructor.

34.216 Seminar: Occupational Structure and Social Mobility

3 a.h. Measurement and interpretation of stratification; stratification and mobility in the U.S.; mobility with emphasis on race and sex differences.

34.217 Seminar: Organizations

3 a.b. Construction and interpretation of social organization. Prerequisites: graduate standing or consent of instructor.

34.218 Seminar: Organizations

3 a.b. Construction and interpretation of social organization. Prerequisites: graduate standing or consent of instructor.

34.219 Seminar: Organizations

3 a.b. Construction and interpretation of social organization. Prerequisites: graduate standing or consent of instructor.

34.220 Seminar: Organizations

3 a.b. Construction and interpretation of social organization. Prerequisites: graduate standing or consent of instructor.

34.221 Seminar: Organizations

3 a.b. Construction and interpretation of social organization. Prerequisites: graduate standing or consent of instructor.

34.222 Seminar: Organizations

3 a.b. Construction and interpretation of social organization. Prerequisites: graduate standing or consent of instructor.

34.223 Seminar: Organizations

3 a.b. Construction and interpretation of social organization. Prerequisites: graduate standing or consent of instructor.

34.224 Seminar: Organizations

3 a.b. Construction and interpretation of social organization. Prerequisites: graduate standing or consent of instructor.

34.225 Seminar: Organizations

3 a.b. Construction and interpretation of social organization. Prerequisites: graduate standing or consent of instructor.

34.226 Seminar: Organizations

3 a.b. Construction and interpretation of social organization. Prerequisites: graduate standing or consent of instructor.

34.227 Seminar: Organizations

3 a.b. Construction and interpretation of social organization. Prerequisites: graduate standing or consent of instructor.

34.228 Seminar: Organizations

3 a.b. Construction and interpretation of social organization. Prerequisites: graduate standing or consent of instructor.

34.229 Seminar: Organizations

3 a.b. Construction and interpretation of social organization. Prerequisites: graduate standing or consent of instructor.

34.230 Seminar: Organizations

3 a.b. Construction and interpretation of social organization. Prerequisites: graduate standing or consent of instructor.

34.231 Seminar: Organizations

3 a.b. Construction and interpretation of social organization. Prerequisites: graduate standing or consent of instructor.

34.232 Seminar: Organizations

3 a.b. Construction and interpretation of social organization. Prerequisites: graduate standing or consent of instructor.

34.233 Seminar: Organizations

3 a.b. Construction and interpretation of social organization. Prerequisites: graduate standing or consent of instructor.

34.234 Seminar: Organizations

3 a.b. Construction and interpretation of social organization. Prerequisites: graduate standing or consent of instructor.

34.235 Seminar: Organizations

3 a.b. Construction and interpretation of social organization. Prerequisites: graduate standing or consent of instructor.

34.236 Seminar: Organizations

3 a.b. Construction and interpretation of social organization. Prerequisites: graduate standing or consent of instructor.

34.237 Seminar: Organizations

3 a.b. Construction and interpretation of social organization. Prerequisites: graduate standing or consent of instructor.

34.238 Seminar: Organizations

3 a.b. Construction and interpretation of social organization. Prerequisites: graduate standing or consent of instructor.

34.239 Seminar: Organizations

3 a.b. Construction and interpretation of social organization. Prerequisites: graduate standing or consent of instructor.

Independent Research and Research Problems

34.260 Research in Organizational Theory

3 a.b. Open to students in organizational theory who wish to work on an independent research problem. Prerequisites: consent of instructor.

34.262 Research and Research Problems

3 a.b. May be repeated. Consent of supervising faculty member required.

34.263 Master's Thesis

3 a.b. May be repeated. Consent of supervising faculty member required.

34.269 Ph.D. Dissertation

3 a.b. May be repeated. Consent of supervising faculty member required.
Spanish and Portuguese

Department chair: George De Mola
Faculty professors: Julio Orton-Cordero, Oscar Fernandez, Joseph Sastre

Language (12 s.h.)
35:117 Third-Year Language I 4 s.h.
35:118 Third-Year Language II 4 s.h.
35:137 Fourth-Year Language I 4 s.h.

Literature (9 s.h.)
Three of the following (both the Peninsular and the Spanish American areas must be represented):
35:101 Renaissance and Golden Age Literature 3 s.h.
35:102 Modern Spanish Literature 3 s.h.
35:103 Contemporary Spanish American Fiction 3 s.h.
35:104 Spanish American Poetry and Drama 3 s.h.

Civilization (3 s.h.)
One of the following:
35:114 Spanish Civilization 3 s.h.
35:115 Spanish American Civilization 3 s.h.

Electives (6 s.h.)
The remaining six hours may be elected from any course numbered 35:100 or above, except that no more than 2 s.h. may be elected in conversation courses 35:108, 35:109. One course given in English may be taken to satisfy 3 s.h. of this requirement. Provided additional readings are done in Spanish.

Spanish major program in Spanish described above will be followed by all students completing a Spanish major after June 1, 1976.

High School Certification
Spanish majors who wish high school teaching certification must complete 35:157 Spanish Phonology I in addition to the requirements listed above. Several courses in the College of Education are also required, as is one semester of Practice Teaching, team in the senior year.

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.

Honors in Spanish
Admission to the Honors Program in Spanish requires a minimum 5.0 overall grade-point average and a 3.2 average in Spanish. Graduation with honors in Spanish requires six semester hours earned in 35:121-122 Honors Literature and 35:123-124 Honors Spanish Language; an Honors essay in Spanish, and an oral examination conducted in Spanish.

Spanish Teaching Minor
The Spanish teaching minor requires 35:117 Third-Year Language I and 35:118 Third-Year Language II.

Undergraduate Programs in Portuguese

First-year Portuguese courses provide training in understanding, speaking, reading, and writing. Second-year courses provide further training in these skills, with emphasis on comprehension and self-expression in Portuguese. Through the reading and discussion of current journalistic prose.

Major in Portuguese

The undergraduate major in Portuguese requires these courses, or their equivalents, beyond the second-year level:

Language (4 s.h.)
35:117 Third-Year Language I 4 s.h.
35:118 Third-Year Language II 4 s.h.

Literature (6 s.h.)
35:106 Brazilian Literature I 3 s.h.
35:106 Brazilian Literature II 3 s.h.

Civilization (6 s.h.)
35:115 Brazil: People and Culture 3 s.h.
35:115 Modern Portugal 3 s.h.

Electives (4 s.h.)
35:103 Modern Brazilian Fiction I: Short Story 2 s.h.
35:104 Modern Brazilian Fiction II: Novel 2 s.h.
35:107 Introduction to Portuguese Literature 3 s.h.
35:108 Bank Literature of Portuguese Expression 3 s.h.
35:110 Nineteenth-Century Brazilian Novel 3 s.h.
Minor in Portuguese
The undergraduate minor in Portuguese consists of 18 credits in Portuguese, with any combination of courses, including first- and second-year courses.

Offerings for Undergraduate Nonmajors
Undergraduate students in other disciplines may meet part of the College of Liberal Arts literature core requirement with 35:6 Contemporary Latin-American Narrative, readings In English. The department offers several other literature and cultural survey courses which are taught in English and are of general interest.
English-language courses in Hispanic literature are crosslisted with those for the major in theater, and further interdepartmental development of this kind is anticipated.

Master of Arts in Spanish
Candidates for the M.A. degree must have completed the equivalent of the undergraduate Spanish major. Deficiencies may be remedied with the appropriate coursework.

Required coursework (38 s.h.)
35:251 Medieval Spanish Literature 3 s.h.
35:252 Medieval-Don Quijote 3 s.h.
35:253 Medieval Literature I 3 s.h.
35:255 Medieval Spanish Literature 3 s.h.
35:256 Medieval-Ibero-Romance Literature I 2 s.h.
35:157 Spanish Phonology I 3 s.h.
35:333 Seminar in Teaching 3 s.h.
Electives 5 s.h.
The student is also responsible for the work listed in the departmental reading list.

Maximum Study Loads
Maximum course registration is 15 graduate hours during the fall or spring semesters, and eight graduate hours during the summer session. One-quarter- and one-third-time teaching assistants are permitted to register for the maximum study loads. One-half-time teaching assistants may register for not more than 12 semester hours in the fall or spring semesters, and for not more than six during the summer session. Additional hours may be taken only with Graduate College approval.

Transfer Credit
A maximum of nine semester hours of graduate credit in approved courses may be transferred from other institutions toward the 36-semester-hour requirement for the M.A. degree.

Teaching Certification
Exclusive of the practice-teaching requirement, graduate students may take the courses necessary for secondary teaching certification while completing M.A. requirements in the department.

M.A. Examinations
Three written examinations and one oral examination will be given. The student chooses from six topics for the written examination(s), but must include at least one topic from each of two areas: I. Spanish language and stylistics, Medieval literature, or Golden Age literature; and, II. Modern Spanish literature, Spanish American literature, or Latin-Brazilian literature.

Doctor of Philosophy in Spanish
Two doctoral programs are available. One is dedicated to Hispanic literatures. Before his or her comprehensive examination the candidate must become well acquainted with another Romance language and literature (Portuguese-Brazilian program is especially recommended), complete the equivalent of a year of college Latin, and demonstrate a reading knowledge of another approved foreign language. Qualifying examinations, to be taken during the second semester of residence by all students whose M.A. work was done at other institutions, consist of a two-hour written examination covering two to four literary works, or one major literary work and authoritative criticism of the work(s), as previously determined by the student and the department; an oral examination: and a research paper prepared at The University of Iowa.

The second doctoral program provides for specialization in Spanish language and literature with emphasis on language. Before his or her comprehensive examination, the candidate must have completed a course in linguistics and the equivalent of three semesters of college Latin, and demonstrated a graduate-level knowledge of a second approved foreign language and a reading knowledge of a third approved foreign language.

In both programs, coursework and individual reading must be designed to give the candidate a thorough knowledge of the Spanish language, its literature, and related civilization, from medieval to modern times; to provide adequate experience in a second Romance language; and to develop the candidate's capacity for critical analysis of literary texts.

The following fields together with the departmental doctoral reading list are considered a basic minimal program for the doctoral degree. The requirement may be fulfilled by acceptable studies at another institution or by the courses at Iowa indicated in parenthesis. The requirement may also be met by independent reading and examination. The candidate is encouraged to pursue further studies in these and other areas, in line with his or her particular interests and in order to improve employment opportunities.

Program I: Emphasis on Literature

History of the Spanish Language and Medieval Literature

35:251 Medieval Spanish Literature 3 s.h.
One additional course in Spanish medieval literature 3 s.h.
35:255 Historical Ibero-Romance Language I 2 s.h.
One additional course in Spanish or Romance Linguistics 2 s.h.

Golden Age Literature

35:225 Drama of the Golden Age 3 s.h.
35:226 Cervantes—Don Quixote 3 s.h.
Area E
A course in Brazilian literature 3 s.h.

Contemporary Language
35:208-209 Graduate Spanish Language I-II 8 s.h.
35:157 Spanish Phonology I or phonology component of 35:208 3 s.h.

Literary Theory
One of the following:
35:217 Literary Theory and Explication of Texts 2 s.h.
35:284 Types of Modern Criticism 2-3 s.h.

Professional Training
35:211 Research Methods and Bibliography 2 s.h.
35:233 Seminar in Teaching 1 s.h.

Seminars
Two 500-level seminars in literature 4 s.h.

Specialization
Students in Program I desiring to specialize in Medieval literature, Golden Age literature, Modern Spanish literature, Latin American literature, or another approved area may be allowed to substitute courses in that area for one nonrequired course in each of the other areas. However, it is strongly recommended that whenever possible these courses be taken in addition to those in the basic program, as initial employment opportunities are enhanced by having a wide spread in areas of preparation.

Program II: Emphasis on Language

History of the Spanish Language and Medieval Literature
35:261 Medieval Spanish Literature I 3 s.h.
One additional course in Spanish Medieval Literature 2 s.h.
35:253 Historical Iberian Romances Language I 2 s.h.
One additional course in Spanish or Romance Linguistics, excluding courses listed below.

Comparative Linguistics
35:250 Comparative Romance Linguistics 3 s.h.

Golden Age Literature
35:225 Drama of the Golden Age 3 s.h.
35:226 Cervantes—Don Quijote 3 s.h.

Modern Peninsular Literature
One of the following:
35:220 19th Century Spanish Novel 5 s.h.
35:221 19th Century Spanish Poetry and Drama 3 s.h.
35:223 20th Century Spanish Poetry 3 s.h.
35:224 20th Century Spanish Novel 3 s.h.
35:239 20th Century Spanish Essay 3 s.h.
35:241 20th Century Spanish Drama 3 s.h.

Latin American Literature
Four courses (12 s.h.) selected from a minimum of three of the following areas:

Area A
35:240 Novel of the Mexican Revolution 3 s.h.

Area B
35:243 Spanish American Colonial Literature 3 s.h.
35:232 Spanish American Essayists and Thinkers 3 s.h.
35:242 Spanish American Literature of the 19th Century 3 s.h.

Area C
35:257 Modernism 3 s.h.
35:244 Spanish American Poetry of the 20th Century 3 s.h.
35:275 Latest Currents in Spanish American Poetry 1950-Present 3 s.h.

Area D
35:231 Spanish American Drama 3 s.h.
35:246 Spanish American Short Story 3 s.h.
35:237 Mexican Short Story 3 s.h.
Seminars
Two 500-level seminars in language 5 s.h.

Ph.D. Comprehensive Examinations
The doctorial comprehensive examinations assume a general knowledge of Spanish Peninsular and Spanish American literatures and cover three broad fields, such as a literary genre or a historical literary period, chosen by the candidate and representing both of the following groups:

Group I
Spanish Language
Medieval Literature
Golden Age Literature

Group II
Modern Literature of Spain
Spanish-American Literature
Luso-Brazilian Literature

Candidates following the program with emphasis on language take comprehensive examinations in two language fields and one literature field, or, with permission of the Department in three language fields. The group distinction outlined above does not apply to the literary field, if one is chosen, may be from either group.

The length of time during which the doctoral examinations are taken is determined by the candidate. They may be taken during the first, second, or third year; however, written four-hour examinations are simultaneously, followed by an oral examination.

Financial Aid
Teaching and research assistantships are available to qualified graduate students. Normally, two years of such support are available for the completion of a master's degree, and four years for the Ph.D. As long as a graduate student's studies and performance meet departmental standards, he or she will continue to receive support over a reasonable period of time, but usually not over four years. A student wishing financial support should apply directly to the departmental office.

Special Facilities
The Language Laboratory provides facilities for language learning, teaching, and research. These include standard and short-wave radio, tape recorders, record players, soundproof recording rooms, two drill studios with 69 dual-channel tape recorders providing a simultaneous master duplicate and student record, an electronic classroom, a soundproof work room, 15mm and 8mm projection equipment and facilities, and a library of tape and disc recordings.

The Department offers to its majors a special course in language laboratory procedures.

A 30-minute Spanish-language program, "Sucesos en España" ("Happenings in Spain"), sponsored by the Department, is broadcast weekly over University radio station WUSL.

The Spanish-Portuguese Players, a group of volunteer student actors, provide dramatic programs in Spanish for students and others in the local area, and on request perform at other campuses in the state.

Spanish Courses

Primarily for Undergraduates
An undergraduate student who has had less than two years of high school study in Spanish will be placed in the first-semester class. This or the background of the student will be evaluated by the instructor. Students placed in first-semester classes may take the placement test. Transfer students who have taken college Spanish or other institutions will be placed according to their competence.

A student may not, except with the approval of the chair, take for credit an elementary course if he has already completed a higher-level course for which the elementary course is a prerequisite.

30.1 Elementary Spanish I 3 s.h.
30.2 Elementary Spanish II 3 s.h.
Prerequisite: 30.1 or equivalent.
30.6 Contemporary Latin American Narratives 4 s.h.
Prerequisite: 30.1 or equivalent. This course offers a broad picture of the major trends of the recent decades. Once an overview of cultural and arts-related elements, given in thoughtings and readings in English, for fulfillment of second-semester-level language requirement only. Same as 118.

30.8 Spanish for Health Professionals 3 s.h.
Interdepartmental cooperation designed to assist students with basic vocabulary used when dealing with patients, physical examinations, and assorted procedures. Students become familiarized with spoken and written vocabulary for the medical personnel. May not be taken to satisfy foreign language requirements.

30.11 Intermediate Spanish I 3 s.h.
Prerequisite: 30.2 or equivalent.

30.12 Intermediate Spanish II 3 s.h.
Prerequisite: 30.11 or equivalent.

31.16 Spanish Civilization: Sephardic Literature 3 s.h.
31.17 Spanish Civilization: Spanish Literature 1-2 s.h.

31.25 Spanish Prosodics 1 s.h.
31.26 Spanish Prosodics 2 s.h.

31.35 Spanish Writing 1 s.h.
31.36 Spanish Writing 2 s.h.

31.95 Intermediate Elementary Spanish 4 s.h.
A complete foreign course.

For Undergraduates and Graduates
31.193 Roadside in Hispanic Literature 3 s.h.
Prerequisite: 30.1 or equivalent. An introduction to literary readings, narrative concepts, and use of language skills through exercises. Directed in Spanish. Prerequisite: 30.1 or equivalent.

31.191 Renaissance and Golden Age Literature 3 s.h.
Study and analysis of representative works of the Golden Age of prose, drama, and poetry. Prerequisite: 30.1 or equivalent.

31.192 Modern Spanish Literature 3 s.h.
The most important trends of Spanish literature from Remarquable to the generation of 1927. Prerequisite: 30.1 or equivalent.

31.193 Contemporary Spanish American Fiction 3 s.h.
Latin American 20th-century short-story writers and novelists of Spanish America (Aurora, Cortazar, Fuentes, Garcia Marquez, etc.) studied through representative works. Prerequisite: 30.1 or equivalent.

31.194 Spanish American Poetry and Drama 3 s.h.
Main Spanish American 20th-century dramatists and poets (Alvareza, Banfield, Lloret, D'Oriza, Garcia Marquez) and Biblical Hebrew. Drastic period through study of representative works. Prerequisite: 30.1 or equivalent.

31.197 Spanish American Literature of the 20th Century 3 s.h.
Principle manifestations of Spanish American narrative from origins to 19th century to comprehensive 20th-century analysis based on the modern and modernist theories of fiction, that of Timean Tzunak and that of not the same. Given in Spanish in alternate years. Same as 108.97.

31.198 Spanish Caribbean: Journeys in the 1950s 1 s.h.
Designed to strengthen comprehension ability in Spanish, with emphasis on everyday matters and current topics of interest. May be repeated for credit.

31.199 Spanish in Latin America 3 s.h.
Survey of contemporary Latin American literature including works of Garcia Marquez, Cather, and Marguerite. Conducted in English. Readings in English. Same as 108.112.

31.195 Spanish Theatre Workshop 1-2 s.h.
Study of a play(s) which is being performed or otherwise, by students in order that they can acquire the fundamental

LIBERAL ARTS/Spanish and Portuguese 201
General Departmental Requirements

Bachelor of Arts

Regardless of his or her area of specialization, a student seeking a Bachelor of Arts degree in the Department must earn:
A minimum of 24 semester hours in the Department, including at least one course in the dramatic art division, at least one course in the broadcasting and film division and at least one course in the rhetorical studies or communication research division; and
A minimum of eight semester hours of production/performance courses and a minimum of eight semester hours of nonproduction/nonperformance courses in the Department.

A student may specialize in rhetorical studies, dramatic art, broadcasting and film, or speech education. The additional requirements for these majors are cited in the division sections.

Master of Arts

Departmental requirements for the Master of Arts degree are:
A minimum of 36 semester hours, including 36-300 Introduction to Research or its equivalent;
A research thesis or, for the nonthesis degree, a graduate seminar involving significant original research;
Successful completion of a six-hour written examination, the scope of which is determined by the candidate’s division and his or her graduate committee; and
At least a 3.0 cumulative GPA for courses on the plan of study.

The application deadline for fall or summer term is February 1 for minimum probability of admission. The minimum cumulative undergraduate GPA required for admission in good standing is 3.75.

Master of Fine Arts in Dramatic Art

See Dramatic Art section.

Educational Specialist (for Junior College Teaching)

Departmental requirements for the Educational Specialist degree are:
A minimum of 60 semester hours, including 36-300 Introduction to Research, a course in the teaching of speech, an approved seminar and at least 10 semester hours completed in the College of Education’s graduate program in higher education;
Successful completion of a research report;
A seminar’s thesis in an assigned teaching position;
Satisfactory performance on a nine-hour written examination on areas of learning agreed upon by the student and his or her graduate committee; and
Successful completion of such additional requirements as are specified by the Division of Speech and Dramatic Art in which the student’s work is concentrated.

Doctor of Philosophy

Departmental requirements for the Doctor of Philosophy degree are:
A minimum of 72 hours of graduate credit, exclusive of research tools and dissertation;
36-300 Introduction to Research or its equivalent, at least two courses in the theory taken within the Department, and others as determined by the student’s advisor and graduate committee, in consultation with the student;
Successful completion of a qualifying examination and demonstration of competence in the study of research and major areas of learning;
A substantial scholarly dissertation; and
A 3.0 minimum cumulative GPA for courses on the plan of study.

The application deadline for fall or summer term is February 1 for minimum probability of admission. Admission decisions are based upon a composite consideration of the applicant’s undergraduate achievement, letters of reference and other evidence of scholarly potential or achievement.
Graduate Record Examination results and samples of one’s scholarly work are desirable for the latter purpose.

Interdivisional Courses

36-10 Workshop in Speech and Dramatic Art 2-3 h.
Methods of analysis, literary research, communication theory, and related teacher-applied practice in voice laboratory, diction, phonetics, perspective, and original oratory.
36-20 Vocal Improvement in Speech and Acting 3 h.
Practical instruction in voice and speech for public speakers, lecturers, teachers, broadcasters, and actors includes study of principles ofonation, voice control, resonation and projection, and introduction to oratory, dramatics, and presentation of Shakespeare, American English.
36-21 Oral Interpretation of Literature 3 h.
Introduction to principles and practice of reading literary prose and poetry in English, analysis, interpretion, evaluation, adaptation, and writing of monologues, and presentation of Shakespeare, American English.
36-22 Rhetoric in Speech and Dramatic Art 3 h.
Open to seniors and graduate students by permission.
36-61 Master’s Thesis 3 h.
Critical analysis and presentation of complex works of fiction, nonfiction, poetry and drama; analysis and review of literature studied prior to semester.
36-62 Oral Performance of Biblical Literature 3 h.
Performance-oriented approach to the select literature from the biblical narrative, attention to the development of analytic, oral, and literary techniques, and to the dynamics of imaginative stage concepts from the text.
36-69 Introduction to Research 1 h.
Review of all major graduate students in Speech and Dramatic Art, except those enrolled in degree of Master of Fine Arts, procedure of selecting and developing research problems and application of representative methods and experimentation in seminars. Discussion, dissertation, readings, papers, reports, audience, guidance in research.
36-695 Master’s Thesis 3 h.
36-699 Ph.D. Dissertation 3 h.

Speech Education

Professor in charge: Double Trimble, Degree offered: M.A., M.A.T.

The speech teaching major requires a minimum of 24 semester hours in the Department of Speech and Dramatic Art. The program must be planned with and approved by the Speech Education advisor. The following should include:
36-63 Voice Improvement for Teachers 3 h.
36-67 Oral Interpretation of Literature 3 h.
36-69 Introduction to Speech Activities 3 h.
Two courses from the Dramatic Art Division 6 h.
Two courses from the Broadcasting and Film Division 6 h.
Two courses from Rhetorical Studies Division 6 h.
Nonproduction or nonperformance credit 6 h.
in addition to the secondary school. T.E.F. foundations courses, students seek-

ing teacher certification in speech and
dramatic art must also register for:

78-160 Methods: Speech 3 s.h.
36-180 Methods: Dramatic 3 s.h.
78-191-192 Observation and Lab Prac-
tice in the Secondary School 12 s.h.
37-187 Seminar: Curriculum and
Student Teaching 1-3 s.h.

Majors and minors are advised to complete the intercultural core requirement with
11-51-53 Drama in Western Culture and
major social science core requirement with
10-51 Language and Society and 30-11
Introduction to American Politics. Majors are
strongly advised to complete a minor

Certification in Speech and
Dramatic Art

Completion of 20 semester hours in speech and
dramatic art is required. These hours
must include speech methods and a

distribution of art at least two courses in any of the

1) public communication (communication
theory, interpersonal communication, ar-
gumentation, discussion and public speak-
ing courses).

2) theater and dramatic art (acting,
stagecraft, technical theater and oral
interpretation courses).

3) broadcasting and film.

Courses

36-187 Speech Auditory 2 s.h.
Planning, organizing and evaluating curricular and
curricular for advanced speech arts programs at the secondary
level. Course will cover establishment of outstanding standards and
practices, preparing student for competitive speech and drama
activities, and sufficient and sound guidelines for the secondary
programs. Same as 78-192.
36-188 Directed Speech 2 s.h.
Topics in speech, drama and forensics, consideration of

ies, oral presentation, public speaking, participation in
competition, instruction in research, analysis and
oratorical skills, critical evaluation of
speech material, and

36-189 Research in Teaching Dramatics, Rhetorics and
Speech 2 s.h.
Methods, materials, audio-visual aids, preparation and
evaluation in teaching, and supervising students in courses and
conducting scheduled activities for the major in

2.0 in 78-190.

36-190 Workshop in Teaching Drama-

nights and drama and

36-191 Workshop in Drama

36-192 Workshop in Teaching Drama-
atics, Rhetorics and Speech 2 s.h.
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evaluation in teaching, and supervising students in courses and
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36-191 Workshop in Teaching Drama-

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36-192 Workshop in Teaching Drama-
atics, Rhetorics and Speech 2 s.h.
Rhetorical Studies

Professor in charge: Douglas D. Zhang
Degrees offered: B.A., M.A., Ph.D.

Bachelor of Arts

This major is recommended for students preparing for active participation in public affairs, communication careers, or teaching. It is intended to serve as an effective focus for a sound liberal education.

Requirements include at least 24 and no more than 36 semester hours in this Department. The program aims at a negotiated balance between doing and knowing—between courses that emphasize informed and guided improvement in oral performances, and courses devoted to theoretical, critical and historically of the principles and practice of public address and the interrelations of public address and the media, film, radio, television and other arts of communication. The student concentrating in public address is also expected to complete a contiguous number of courses in other departments in the College of Liberal Arts.

Programs for majors include:

35:53 Voice improvement for Speakers and Actors

One of the following:
35:630 Communicating in Public
35:631 Group Communication
35:632 Interpersonal Communication
35:57 Oral Interpretation of Literature
35:81 Readers' Theatre
One of the following:
35:104 Theory and Practice of Argument
35:125 Theory and Practice of Persuasion
35:126 Interview and Conference Methods
One of the following:
35:80 Communication Theory in Everyday Life
35:70 Resistance to Persuasion
35:80 Communication and Contemporary Culture
35:110 Theories of Rhetoric
35:132 Anglo-American Public Communication: Early Period
35:133 Anglo-American Public Communication: Later Period
35:135 Contemporary Public Communication
35:140 Rhetoric of Human Rights

Selected courses in drama and theater, and in radio-TV, audio.

At least 15 semester hours beyond the liberal arts group communication requirements in literature, history, psychology, philosophy, foreign language and/or social science.

Forensics

Through forensics, the rhetorical studies student at Iowa has the opportunity to expand research skills, develop improved listening habits, work on organizational and reporting methods, and use all public speaking skills before audiences in front of the classroom. Students may choose to work in debate, oratory, interpretative reading or expository speaking. Each student will have the opportunity to work with experienced instructors at the University and to receive detailed critiques from teachers of argumentation and public communication throughout the country.

The Master of Arts Program

The program is intended to build a strong foundation for teaching in high schools and junior colleges or for proceeding to the doctorate. The program may include the preparation of a thesis, according to the decision of the student and advisor. The program will include:

35:500 Introduction to Research;
At least 15 hours of courses in rhetoric and public address, including a seminar; At least six hours of courses in other divisions of this or related departments; A course in the bases of speech (valor and phonetics) or evidence of adequate work in related courses; and

A comprehensive examination.

The Doctor of Philosophy Program

The program leading to the Ph.D. degree is designed to give the candidate a mature grasp of his or her field of learning and to develop the research competence essential to a life of productive scholarship.

For basic requirements, see the initial sections of this department's description.

Courses:

35:25 Principles of Speech Communication 2 s.h.

35:30 Communication in Public 2 s.h.

35:31 Rhetoric and Argument 2 s.h.

35:32 Interpersonal Communication 2 s.h.

35:33 Oral Interpretation of Literature 2 s.h.

35:80 Communicating Theory in Everyday Life 2 s.h.

35:70 Resistance to Persuasion 2 s.h.

35:110 Theories of Rhetoric 2 s.h.

35:132 Anglo-American Public Communication: Early Period 2 s.h.

35:133 Anglo-American Public Communication: Later Period 2 s.h.

35:135 Contemporary Public Communication 2 s.h.

35:140 Rhetoric of Human Rights 2 s.h.

35:150 Communicating in Public 2 s.h.

35:160 Communicating in Public 2 s.h.

35:170 Communicating in Public 2 s.h.

35:180 Communicating in Public 2 s.h.

35:190 Communicating in Public 2 s.h.

35:200 Communicating in Public 2 s.h.

35:210 Communicating in Public 2 s.h.

35:220 Communicating in Public 2 s.h.

35:230 Communicating in Public 2 s.h.

35:240 Communicating in Public 2 s.h.

35:250 Communicating in Public 2 s.h.

35:260 Communicating in Public 2 s.h.
Master of Arts

The program is designed for students who anticipate teaching at the high school and junior college levels and for those who want to earn an advanced degree before proceeding to the doctorate. The program consists of a combination of prehistoric and elective courses covering the general areas of dramatic literature, criticism, theory, history and production. A thesis or graduate seminar in history, theory or criticism of drama or theater is required.

Master of Fine Arts

Students who demonstrate exceptional ability in playwriting, directing, design, acting, management or technical direction may apply for admission to the program of study and production leading to the M.F.A. Admission is dependent on recommendations and appropriate demonstrations of ability. Six semesters in residence and 48 semester hours are required, and courses must reappear for admission each year. Substantial creative work of high quality is expected of all candidates.

Admission is based upon audition or portfolio of relevant artistic work, in addition to undergraduate record, other records of artistic accomplishment and letters of recommendation.

Doctor of Philosophy

The Ph.D. program in theater is designed to emphasize research and creative scholarship rather than general education or production.

Facilities

The Division's commitment to an extensive and varied production program is reflected in its use of four quite different theaters. Studio II is a large, flexible space in which class projects, highly experimental productions and readers' theater productions are performed with limited scenery and small audiences. The Old Armory Theatre is a 200-seat house with a thrust/heel stage. Nine simple sets are produced in a converted lecture hall in MacLean Hall. The E.C. Maize Theater is an excellently equipped proscenium theater which offers seating for almost 600 patrons. The Division also performs in Hatch Auditorium. Seating
2,901. this facility is used by the numerous professional touring shows which perform in Iowa City, and boasts the latest and most sophisticated stage machinery available. To support its continuous production schedule and to provide its students with an appropriate range of experiences, the Division maintains several shops for the building, maintenance and storage of its scenery, costumes and properties. Using the three scene shops, students can learn to work in metal and plastics as well as canvas and wood. In lighting and sound, students are exposed to a range of equipment from the manual reliability lighting control and the two-channel sound systems of the Old Armory Theatre to the fully computerized lighting controls and the five-channel sound system used in Hancher Auditorium.

Courses

For Undergraduates

3912 Shakespeare
Same as EN 356. 3-4 s.h.
3913 Shakespeare
Same as EN 225. 3-4 s.h.
3521 Drama in Western Culture
Required of all drama majors. Same as EN 315. 3-4 s.h.
3522 Drama in Western Culture
Required of all drama majors. Continuation of 3921. Same as EN 316. 3-4 s.h.
3591 Modern Drama
Same as EN 357. 3-4 s.h.
3592 Selected Plays
Same as EN 358. 3-4 s.h.
3593 Student's Favor
Same as EN 359. 3-4 s.h.

For Undergraduates and Graduates

3511 Dramatic Art Laboratory
En. individual assignments in various aspects of dramatic production. 3 s.h.
3517 Acting I
Improvisation and approach to actor training focusing on character development, personality awareness, imagination, and experimentation. Comprises 357-100. Section 5.
3518 Acting II
Continuation of 3517. Same study with emphasis on physical, vocal, and emotional development. Same as EN 358. 3-4 s.h.
3519 Acting III
Advanced advanced study for the actor. May be repeated. Admission by audition only. Same as EN 358. 3-4 s.h.
3514 Acting Workshop
Preparation and workshopping for the aspiring student. Admission by audition only. May be repeated. Same as EN 357. 3-4 s.h.
3515 M.F.A. Acting Workshop
Preparation in acting for classical, modern, and experimental theatre forms. Emphasis on audition. Information to be obtained. May be repeated. Comprises 357-100, 357-102, 356-113, 356-118, 356-119. 3-4 s.h.
3516 Voice for the Actor
Introduction to vocal technique and stage, speaking, breath, support, tone, voice, and style. May be repeated. Comprises 357-100 and 356-118. 3 s.h.
3517 Movement for the Actor
Identification of physical movement problems, development of rhythm, agility, movement exploration through improvisation and physical awareness classes. May be repeated. Comprises 357-100 and 356-118. 3 s.h.
3518 Advanced Voice Targeting
Advanced preparation in stage, movement and vocal character. Same as EN 357. 3-4 s.h.
3519 Advanced Movement Training
Advanced preparation in stage, movement, and vocal character. Same as EN 357. 3-4 s.h.
3516 Introduction to Theatrical Staging
Principles of design and their application to the stage in scenery, properties, costumes, lighting, and makeup. Comprises 357-100. Same as EN 357. 3-4 s.h.
35111 Introduction to Theatrical Staging
Continuation of 3511. Preparatory. Comprises 357-110 and consent of instructor. Same as EN 357. 3 s.h.
35112 Production Design I
Study of scenic form, space, and period of designing for theater. Comprises 357-111 and consent of instructor. Same as EN 357. 3 s.h.
35113 Production Design II
Analysis of artistic styles, the development of scenic design and, the prescription of scenic form, space, and period of designing for theater. Comprises 357-111 and consent of instructor. Same as EN 357. 3 s.h.
35114 Design for Theatrical Staging
Advanced design for scenic, costume, and lighting design. Comprises 357-113 and consent of instructor. Same as EN 357. 3 s.h.
3513 Drafting and Sketching
Drafting techniques and techniques for theatre designers and technicians. Comprises 357-134. 3-4 s.h.
3514 Modeling
Culmination of training in techniques for scenic, costume, and lighting design. Comprises 357-110. 3-4 s.h.
3515 Designing Techniques for High-School, College and Community Theatre
Practical experimentation in adapting the audience to be reached, planning the setting and prop elements of the play. Extensive drawing and dummy designs of scenic and prop production budgets. Where possible, set and costume design will be developed. Comprises 357-110. 3-4 s.h.
3516 Bagwell I
Basic techniques and preparation of lights and sound. Comprises 357-110. 3-4 s.h.
3517 Bagwell II
Advanced techniques and application for preparation of scenery and sound. Comprises 357-110. 3-4 s.h.
3519 Advanced Scenic and Prop Composition
Analysis and solution of problems in construction and painting of scenery. Comprises 357-114. 3-4 s.h.
3511 Lighting
Comprehensive knowledge of stage lighting and properties. Comprises 357-111. Comprises 357-110. 3-4 s.h.
3517 Electrical Control in the Theatre
Analysis of systems for control of sound, light, and theatrical effects in theater. Comprises 357-110, 357-116. 3-4 s.h.
3511 Environmental Design I
Preparatory permission of instructor. Same as EN 357. 3-4 s.h.
3515 Introduction to Arts Management
Drama and operation of production personnel. Comprises 357-110. 3-4 s.h.
3516 Stage Makeup
Application and design of stage makeup. Comprises 357-110. 3-4 s.h.
3517 Technical Production
Intermediary construction, lighting, and staging of scenery. Comprises 357-110, 357-116. 3-4 s.h.
3516 Stage Costume: Painting
Lectures and on-scene painting materials, basic skills and techniques of applying scenic and other decorative exercises at paint frame. Comprises 357-110. 3-4 s.h.
3517 Costuming for the Arts
Dressers of color theory, advanced techniques in paint and dye. Comprises 357-110. 3-4 s.h.
3518 Production and Special Effects
Creation and application of theatrical properties; development and control of special effects. Comprises 357-110, 357-116. 3-4 s.h.
3519 Stage Costume: Rotating
Selection and application of fabrics for stage costumes. Comprises 357-110, 357-116. 3-4 s.h.
3512 Stage Costume: Cutting and Dressing
Application and cutting of theatrical ensembles for stage costumes with particular attention to silicon. Comprises 357-110. 3-4 s.h.
3513 Stage Costume: Rotating and Dressing
Fitting costumes for stage ensembles with particular attention to silicon. Comprises 357-110. 3-4 s.h.
3514 Stage Costume History I
History of dress in relation to stage costumes. Comprises 357-110. 3-4 s.h.
3515 Stage Costume History II
History of dress in relation to stage costumes. Comprises 357-110. 3-4 s.h.
3516 Survey of Theatre History I
Focus on the reconstruction of production conditions from 19th century Britain through 17th century France and England, in terms of sculpture, drawing, staging, architecture, properties, costumes, acting styles and audience response. Comprises 357-110. 3-4 s.h.
3517 Survey of Theatre History II
Focus on 19th century America from 1869-1888, the turn of the century to take up out of interest. Comprises 357-110, 357-116. 3-4 s.h.
3518 Life Drawing I
Life drawing and sketching. Comprises 357-112. 3-4 s.h.
3519 Technical Directional Drafting
Research in theatrical production and management. Comprises 357-119. 3-4 s.h.
35165 Director's Guide
A comprehensive procedure leading to fundamental technique for translating design-envisaged play into stage; a writer's guide for how to stage and realize a design. Comprises 357-110. 3-4 s.h.
35110 History of Design for Theatrical Stage Production
Study of art of production design with emphasis on director as intermediary. Comprises 357-110, 357-119. 3-4 s.h.
35124 Directing Workshop
Individual assignments in reversing reality in rehearsal aspects
with speech, hearing or language problems in hospitals, community centers, rehabilitation facilities and elementary and secondary schools; teach in colleges and universities; and/or conduct research in laboratories concerned with communication processes and disorders.

All professional programs of the Department leading to the M.A. degree are accredited by the Education and Training Board of the American Board of Examiners in Speech Pathology and Audiology.

Undergraduate Curricula

Since the master's degree or its equivalent is the minimum level of preparation for persons seeking professional careers in this field, the undergraduate curricula leading to B.A. or B.S. degrees in speech and hearing science do not qualify an individual to work professionally in this field but here as a primary purpose the preparation of students for graduate work. Hence, the undergraduate program emphasizes the normal processes of speech, hearing and language. These undergraduate programs also be taken by persons who want a degree in the College of Liberal Arts but who do not desire a career in this field.

Students may qualify for either the B.S. degree or the B.A. degree with a major in speech and hearing science by completing, in addition to the general requirements prescribed by the College of Liberal Arts, the undergraduate departmental program given below.

Required Departmental Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:15</td>
<td>Intro to Speech and Hearing Processes and Disorders</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>3:20</td>
<td>Phonetics of American English</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>102:110</td>
<td>Articulatry and Auditory Phonetics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>3:110</td>
<td>Anatomy of the Swallow and Hearing Mechanisms</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>3:112</td>
<td>Fundamentals of Speech Science</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>3:113</td>
<td>Introduction to Hearing Science</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>3:117</td>
<td>Psychology of Language I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>or 103:100</td>
<td>Introduction to Linguistics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>3:118</td>
<td>Psychology of Language II</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Required Courses in Related Areas

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>39:113</td>
<td>Phonetics of Sound and Music</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>3:143</td>
<td>Introduction to Statistical Methods</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>3:11</td>
<td>Elementary Psychology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>or 3:13</td>
<td>General Psychology</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

A minimum of nine semester hours must be earned in one course from Group 1 and one course from Group 2, below, and one additional course selected from psychology, anthropology, and sociology.

Group 1

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:110</td>
<td>Learning and Motivation in Children</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>3:111</td>
<td>Child Development</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Group 2

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:13</td>
<td>Psychology of Adjustment</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>3:106</td>
<td>Personality</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>3:183</td>
<td>Abnormal Psychology</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Other Requirements

Students requiring in speech and hearing science must either complete or have the equivalent of college algebra and trigonometry, college physics dealing with light and sound, and a college course in the biological sciences.

Honors Program

The senior-year program leading to the B.A. degree and Honors in speech pathology and audiology is open to students who have completed at least 10 semester hours of coursework that can be counted toward a major in the Department, and have earned at least a 3.0 grade-point average on all major courses and all work at the University. For graduation with Honors, a student must complete two semesters of study in residence after entering the senior year; Honors program; maintain a minimum grade-point average of 3.0 overall; major all courses in the major and in the required six semester hours of departmental Honors courses for seniors (Honors Seminar and Honors Thesis); and be recommended for graduation with Honors by the Honors thesis adviser and the departmental Honors adviser. Students who are eligible and who are not already enrolled as Honors students should confer with the departmental Honors adviser before the beginning of the senior year. At any time during undergraduate study, students who have earned a minimum grade-point average of 3.0 and have not entered the University as Honors students may apply for Honors classification in the College of Liberal Arts and in the Department by recommendation of the departmental Honors adviser.

Advanced Degrees

Master of Arts Degree

The M.A. program in speech pathology and audiology may be a professional program to prepare the student for immediate placement in clinical service positions, or it may be a general program of graduate study leading to additional study for the Ph.D. degree. The various programs for the professional M.A. are necessarily specified to ensure that upon graduation the student will meet the requirements for immediate professional placement; the general M.A. program allows greater flexibility of individual program plans.

It is presupposed that the student has a background of undergraduate courses in speech and hearing science, development of oral communication and psychology of human behavior essentially equivalent to an undergraduate major in this field.

Entering M.A. degree candidates are required to take preliminary comprehensive examinations covering coursework in speech and hearing that is considered prerequisite to graduate study. The results of these examinations are considered diagnostic in nature, providing the student and faculty adviser with a basis for developing an appropriate plan of study. These examinations must be taken prior to first registration in the program. If the student fails the examinations may be waived if the student chooses to take appropriate courses.

Professional Program

The professional M.A. program is designed to prepare specialists in speech pathology and audiology who will be competent to function independently in a variety of clinical settings. Persons completing a professional M.A. program meet all academic requirements for clinical certification by the American Speech and Hearing Association. Four different curricula are provided. Each includes basic studies listed below under A, the requirements listed under one of the four
The M.A. program for the student planning to continue to the Ph.D. degree is individually planned in consultation with the student’s advisor. It usually includes a substantial portion of the courses previously listed for the professional M.A. program. Certain of the courses, however, may be omitted, deferred or replaced by other courses when appropriate for the student’s plan of study leading to the Ph.D. degree. Students planning to continue to the Ph.D. degree are required to present a thesis as part of the M.A. program and successfully complete a final oral examination.

**Doctor of Philosophy Degree**

The Ph.D. program provides for comprehensive training for the scholar and researcher in speech and hearing processes and disorders and also for more intensive specialization in particular clinical problems in which the student may have special interest. The Ph.D. program is usually planned with specialization in speech pathology, audiology, speech science or hearing science. Within each area the candidate and advisor may provide for special emphasis through a suitable selection of advanced seminars and research areas. Most students will find that most special interests lie in one or more of the four listed areas. The establishment of prescribed programs for these areas is not intended to circumscribe the graduate curriculum of the Ph.D. candidate who has specialized goals or interests which are not adequately met by these programs. Individual programs designed to meet special interests and goals are encouraged, provided only that the student’s purposes are clearly defined and that he or she presents an approximate plan of study for their accomplishment.

Courses beyond those included in the departmental offerings are drawn mainly from the areas of physics, engineering,
mathematics, statistics, physiology, neurology, anatomy and psychology.

The nature of the Ph.D. comprehensive examination is determined for each student by a five-member comprehensive examination committee. This committee, in consultation with the student, designs and carries out a plan for a comprehensive evaluation of the student's ability to function adequately in a research and/or academic environment. The evaluation must include both written and oral performance. Candidates whose master's training has not included a master's thesis will not fulfill the comprehensive examination requirement until they have completed a suitable research project and presented a paper summarizing its results. This project is to be of a magnitude appropriate for a master's thesis. It is expected that the comprehensive examination will be completed prior to the end of the student's first calendar year of full-time, post-master's study. The Ph.D. candidate must also successfully complete a dissertation based on original research in the area of specialization.

Recommended Courses

A. All Areas of Specialization

Courses, or their equivalents, required for M.A. degree, and the following additional courses:

3120 Fundamentals of Laboratory Instrumentation
3250 General Experimental Phonetics
3550 Research Speech Pathology
381 Research Audiology
392 Research Experimental Phonetics

Statistics beyond introductory course Courses in computer science Courses in biology (physiological, learning, motivation, personality)

B. Speech Pathology

Courses listed under A, and:

225 Seminar in areas of interest Clinical practicum

C. Audiology

Courses listed under A, and:

225 Psychophysiology
225 Audiology Laboratory

225 Phonetics
225 Psychosociology Laboratory

225 Speech Science
225 Psychological Laboratory

D. Speech and Language Science

Courses listed under A, and:

225 Psychophysiology
225 Psychosociology Laboratory
225 Phonetics
225 Psychophysiology
225 Speech Physiology

Courses in biological and physical sciences and mathematics

E. Hearing Science

Courses listed under A, and:

225 Psychophysiology
225 Psychosociology Laboratory
225 Physiology of Hearing
225 Psychophysiology

Courses in biological and physical sciences and mathematics

Students following programs in speech and language science or hearing science are normally expected to register for research credit during each semester of residence.

Admissions and Appointments

The Department of Speech Pathology and Audiology has requirements for admission and graduate appointment (financial) which supplement those specified by the Graduate College. Only a brief summary of these requirements is presented below. For more detailed information, contact the Department chair.

Special Admission Requirements

Scores from the aptitude tests of the Graduate Record Examination generally are required. Applicants may be admitted without such scores only in special cases.

All applicants must have completed "Information Form" with the Department. This form can be obtained from the Department chair. Admission into the master's program is based on consideration of an applicant's credentials in relation to those of other applicants for that term. Thus a minimum grade-point average cannot be specified exactly. As a general guideline, however, experience indicates that few students with undergraduate averages under 3.0 (B) will be admitted into the M.A. program. This does not imply that all applicants with a grade-point average greater than 3.0 will be admitted.

Admission Deadlines and Processing

Applicants to M.A. Program

Completed application to begin a program in summer session or fall semester must be received no later than the preceding February 1. Later applications will be considered only in special situations. Applications to begin study in the spring semester will be considered only under special circumstances and only if they are received no later than the preceding November 1. In most instances, applications for summer session or fall semester will be notified of action on their admission between March 1 and April 1. Applicants for spring semester will be notified as soon as possible. In some cases, an applicant may be admitted only on the condition that he begins his program in a different term than the one for which he has applied.

Applicants to Ph.D. Program

Completed applications must be received at least two months prior to the beginning of the term for which application is made: approximately April 1 for summer session, July 1 for fall semester, November 1 for spring semester. However, if an applicant wishes to be considered for graduate appointment, the admission application must be filed by the deadline for appointment applications specified below. Applicants will usually be notified of action on their admission within six weeks after their applications are complete.

Applicants for Graduate Appointments

The following information applies to all financial appointments (assistantships, fellowships, etc.) administered by the Department:

Graduate appointments (fellowships) usually begin only in fall semester. Study beginning in second semester or summer session are considered for appointments for the following fall semester.

Scores on the aptitude tests of the Graduate Record Examination are routinely required for consideration for financial assistance.
2.41 Advanced Auditory
Continuation of Section 2.40 which is prerequisite. Additional work in speech perception, auditory discrimination, and the effects of noise and masking.
Prerequisite: 2.31 or consent of instructor.

3.242 Amplification for the Hearing-Impaired
Sections 3.241 and 3.243: designed to help hearing-impaired individuals understand: a) the nature of hearing loss and the types of hearing aids available, b) the role of amplification in the management of hearing impairment, c) the selection and fitting of hearing aids, d) the importance of professional hearing aid evaluation and follow-up, and e) the legal aspects of hearing aid use.
Prerequisite: 3.241 or consent of instructor.

4.464 Rehabilitation Auditory
Theory and practice for assessment and rehabilitation of the speech, hearing and language skills of the hearing-impaired. Prerequisite: 3.242 or equivalent.

5.246 Speech/ Language Disorders
An interdisciplinary team of experts in speech, hearing and language disorders and related disciplines. Prerequisite: 3.242 or consent of instructor.

6.245 Speech and Language Disorders
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39.245 Speech and Language Disorders
An interdisciplinary team of experts in speech, hearing and language disorders and related disciplines. Prerequisite: 3.242 or consent of instructor.

40.245 Speech and Language Disorders
An interdisciplinary team of experts in speech, hearing and language disorders and related disciplines. Prerequisite: 3.242 or consent of instructor.
Core Curriculum

The purpose of the core curriculum is to provide a rigorous and consistent foundation for the consideration of policy issues, with an emphasis on theory and methods which have proven their usefulness in professional contexts. Because of the generality of the material, it is taught at a moderately high level of abstraction, relying upon examples and exercises to firmly implant the concepts.

Three functions are incorporated into the core:
Social Goals and Normative Criteria Problems in the public sector involve a complex balancing of a large number of objectives (environmental quality, decent housing, equity, convenient transportation, etc.) which are seldom in commensurable terms, so maintaining a clear view while sorting through all the details and side issues demands a very strong normative framework.
Understanding Structural Relationships
Besides being able to distinguish better from worse, planners must have a sound operational comprehension of how the world works—the various economic, social, political, administrative, and legal systems through which collective problems are created, transmitted, addressed, and resolved.
Analytic Techniques
A number of specific skills are broadly useful in the planning field. Some of these are quantitative (statistics, mathematics, forecasting, estimation, accounting, designing of indices, discounting, etc.), some are normative (cost-benefit, budgeting, impact assessment, equity impact evaluation), and some are less formal in quantitative analytic procedures.

Throughout the program, the emphasis is on the use of simple, flexible methods which are well understood by the student and capable of producing results in a very short time if necessary. Techniques are designed and constructed to the context of, and in response to, each policy problem as it is encountered; there is little emphasis on teaching and cataloging numerous "standard" methodologies for future applications, because such methodologies seldom offer much insight into policy problems.
Joint Programs

Law and Planning

Urban and Regional Planning and the College of Law cooperate in administering a four-year program which satisfies the degree requirements leading to an M.A. or M.S. in planning and a J.D. in law. This is a reduction of one academic year from the total requirements of the two programs taken separately. Separate admission to both academic units is required.

Preventive Medicine and Environmental Health

Urban and Regional Planning and the Department of Preventive Medicine and Environmental Health in the College of Medicine cooperate in administering a program for health policy planners leading to the M.A. or M.S. in planning and the Ph.D. in preventive medicine and environmental health. Coursework reduced from four to three years. Separate admission to both academic units is required.

Urban Transportation

The Urban Transportation Research and Training Program is administered by the Center for Urban Transportation Studies of the Institute of Urban and Regional Research. This Institute, and its Transportation Center, serve as a separately organized unit of the University. The Center provides transportation certification to students in academic graduate departments at Iowa who satisfactorily complete a prescribed set of interdepartmental transportation courses. Planning students interested in transportation find this certificate program enhances the value of their departmental major in transportation. A separate admittance process is maintained for joint candidacy. For particulars, see the Urban Transportation section of this Catalog.

Social Work

A concurrent studies program is offered between Urban and Regional Planning and the University of Iowa School of Social Work, leading to the M.A. in planning and the M.S.W. in social work. Twelve semester hours in planning are accepted toward the M.S.W., and 12 semester hours in social services, regional planning, and urban management — and others can be designed by the student and approved by the faculty.

Sectoral majors are intended to provide specific training in some areas of concentration. Among public policy problem areas, rather than permitting choices among some other plan, program requirements for the major cannot be satisfied, for example, by specialization in quantitative methods, or public finance, or community organization. These subjects are important, but they are important to all planners and are included in the core.

The primary purpose of the sectoral major requirement is to reinforce the concepts presented in the core courses by applying them to specific issues in a limited policy area. That is, to develop depth by concentrating on a particular set of problems. A secondary purpose is to enhance entry-level employment opportunities by having a subject label within the planning field to refer to, such a designation of specialized knowledge to draw upon.

The major is not intended, however, to produce narrow specialists, and students should not expect to become accomplished ecologists or systems engineers within the scope of the planning program.

Other Requirements

Students may request waivers of any core course, on the basis of their training and experience. A two-part comprehensive examination is required for all students. The major requirements for the examination are designed to develop critical judgment and insight in the application of theory, and depend upon case studies and extended examples.

Sectoral Majors

The second year of the program is directed toward the development of an area of concentration, the sectoral major, with nine credits in courses offered in various departments and schools of the University, including the planning program itself.

Currently, there are nine pre-designated majors—land use, transportation, housing, social program evaluation, health policy and planning, environmental planning, urban |
Urban Growth in Developing Countries

Program coordinator: Michael L. Wickliff

A multidisciplinary graduate program of interdisciplinary and cross-cultural seminars and courses focused on problems of development in Third World countries is offered through the Center for Development Studies within the Institute of Urban and Regional Research. Intended to facilitate and coordinate interdisciplinary instruction and research, the program is available to graduate students from departments throughout the University.

In addition to a number of development-related courses offered in specific departments, the program includes a graduate course, Urban Growth in Developing Countries, in the departments of Anthropology, Economics, Geography, Political Science, Social Work, Sociology, and Urban and Regional Planning. Taught by an interdisciplinary team, the course introduces students to the analysis of urban problems in developing countries from a cross-cultural and interdisciplinary perspective.

A graduate workshop is intended to provide a forum for graduate students and faculty members from a variety of departments to meet regularly to discuss problems of mutual interest. Additional information may be obtained by contacting the program coordinator.

Urban Transportation

A graduate program consisting of both education and research is offered by The University of Iowa's Center for Urban Transportation Studies. The program encompasses the interactions of an urban society with the various elements of urban transport systems. Participation of five graduate students in the program is diverse in disciplines, focusing on urban transportation planning, transit management, and travel behavior.

The course of study must include a minimum of 18 hours of transportation courses and other related courses. Twelve of the 18 hours must be transportation courses, and the remaining six must be in transportation-related courses outside the student's discipline. Students must be enrolled in the Transportation Program for a minimum of one year (two semesters) to receive a transportation certificate. To insure knowledge of basic transportation planning and sufficient depth in a special area, the student must complete the core courses and fulfill one option as part of the 12 hours of transportation. The core consists of three required courses:

- Urban Transportation: Business Administration, Economics, Geography, Law, Political Science, Psychology, Sociology, Systems Engineering, and Urban and Regional Planning.

Requirements

The Urban Transportation Program is not a degree-granting program, but instead issues a transportation certification to students, enrolled in degree-granting departments, which serve as the primary source of course selection for transportation study. The student should design a course of study in consultation with his/her advisor or the director of the Urban Transportation Program. The course of study must be approved by the Urban Transportation Program Executive Committee prior to registration for the program.

The course of study should consist of 18 hours of transportation courses and other related courses. Twelve of the 18 hours must be transportation courses, and the remaining six hours must be in transportation-related courses outside the student's discipline. Students must be enrolled in the Transportation Program for a minimum of one year (two semesters) to receive a transportation certificate. To insure knowledge of basic transportation planning and sufficient depth in a special area, the student must complete the core courses and fulfill one option as part of the 12 hours of transportation. The core consists of three required courses:

- Urban Transportation: Business Administration, Economics, Geography, Law, Political Science, Psychology, Sociology, Systems Engineering, and Urban and Regional Planning.

With few exceptions, graduates of the program are currently employed in a variety of functions in the transportation field.
102:311 Introduction to Urban Transportation (can be waived for students with prior training or experience in transportation) 2.0 cr. 3.0 cr.

102:280 Transportation Policy and Planning 2.0 cr.

In addition, students must enroll in 102:311 Transportation Program Seminar each semester they enroll in the Urban Transportation Program. Credits for 102:311 do not count toward the 18-credit hour requirement. Two options are available to Transportation Program students. 182.281 Problems in Transportation and Land Use must be taken to complete the transportation policy option. 583.175 Transportation Systems Design must be taken to complete the transportation design option.

To achieve the interdisciplinary goal of the Urban Transportation Program, the student should make every attempt to take a course from all Transportation Program faculty, as they represent the various disciplines germane to transportation planning.

Students are strongly encouraged to gain practical experience in transportation research by completing a thesis or major project in conjunction with a course (such as 102:281) or a research assistantship. All students should insure that the executive committee has a current course of study approved and on file. Students currently enrolled in the Transportation Program should review their course of study with the program principles in mind to determine whether alterations are necessary.

Research

Problems of small urban systems and low density systems are explored in research projects. Through a combination of coursework and research activities— laboratory, survey, focus group, field and laboratory systems design and monitoring, of small community transportation projects, et al.—abided students will develop skills and receive a practical-oriented educational experience in areas such as travel behavior, transit systems design, transit service, and impact evaluation.

Urban and regional laboratories available for the learning process (Carrollville, Iowa City, Cedar Rapids, Quad Cities and Johnson County) provide an attractive range of smaller urban and regional systems within which to study travel behavior and transit planning.

All students financially supported in the program participate in the transportation research of the Center; CEE units are provided for students to develop their own research activities.

Student Support

Fellowships, research assistantships, tuition scholarships and summer assistantships are awarded on a competitive basis with the level of financial support ranging from quarter-time research assistantships $2,500 per month for the academic year) to half-time research assistantships ($500 per month). All out-of-state students receiving research assistantships are eligible for in-state tuition. Students requiring financial support during the academic year are eligible for half-time summer research assistantships, as funding permits; those assistantships are generally awarded for two months at $500 per month. The financial support indicated above is not intended to span all potential sources available within the university, but only to indicate the typical levels of financial support within the Center for Urban Transportation Studies.

Admission

Application for admission to the Graduate Program in Urban Transportation is made by submitting a duplicate University Application form, two letters of reference, and a brief statement relating the nature and extent of the applicant’s interest in urban transportation.

Women’s Studies

Program Chair: Susan H. Hackett

The Women’s Studies Program is a multidisciplinary program engaged in developing a body of knowledge about women and institutionalizing that knowledge within the university community. The term “women’s studies” does not connote segregated education for women but emphasizes teaching and research about women which is of intrinsic interest to all students. This new academic dimension in education forms a cumulative pattern of learning about women and supplements neglected areas of study in the existing curriculum, raises provocative intellectual questions about the human condition as a whole, and opens wider the quest for truth.

For information on faculty members in varied departments who will direct graduate study, contact the Women’s Studies Program, 305 English Philosophy Building. For detailed descriptions of the courses listed below, consult the appropriate department, school, or program in this Catalog. Since the topics of some courses change from year to year, students should refer to the schedules of courses for pertinent information.

In addition to courses listed in the regular course schedule, Women’s Studies courses for University credit are offered by the Saturday and Evening Class Program and by Correspondence Study. Macmillan classes are taught at the Women’s Resource and Action Center.

American Studies

Undergraduate students may elect various courses from the disciplines listed below or may receive an area of concentration in Women’s Studies within the Bachelor of General Studies degree. Graduate students may choose an area of concentration within existing academic disciplines or may create an interdisciplinary prospectus. For information on faculty members in varied departments who will direct graduate study, contact the Women’s Studies Program, 305 English Philosophy Building. For detailed descriptions of the courses listed below, consult the appropriate department, school, or program in this Catalog. Since the topics of some courses change from year to year, students should refer to the schedules of courses for pertinent information.

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In addition to courses listed in the regular course schedule, Women’s Studies courses for University credit are offered by the Saturday and Evening Class Program and by Correspondence Study. Macmillan classes are taught at the Women’s Resource and Action Center.

American Studies

Undergraduate students may elect various courses from the disciplines listed below or may receive an area of concentration in Women’s Studies within the Bachelor of General Studies degree. Graduate students may choose an area of concentration within existing academic disciplines or may create an interdisciplinary prospectus. For information on faculty members in varied departments who will direct graduate study, contact the Women’s Studies Program, 305 English Philosophy Building. For detailed descriptions of the courses listed below, consult the appropriate department, school, or program in this Catalog. Since the topics of some courses change from year to year, students should refer to the schedules of courses for pertinent information.
World Order Studies

Since 1972, The University of Iowa has been working to develop a multidisciplinary undergraduate program in World Order Studies. The purpose of this program is to give students an opportunity to study and acquire skills in the analysis of some major contemporary global problems which cannot be covered adequately by any one department. The program initially developed is now under review.

All other courses relevant to this program have been and continue to be offered in their respective departments. For further information on program status, contact the Office of the Vice President for Educational Development and Research.

Course

EIB105 Global Interdependence and World Order 3 a.

Zoology

Department chair: Eugene Spier.
Assistant professors: Richard F. Gwaltney, Hugh Doebel, Stephen A. Bier, Barbara A. Blay.
Norman D. Williams.


Graduate students: David E. Cole, Gary Seaman, Stephen T. Blaylock, Stanley D. Cate, David Sall, Michael Hallett.


Degrees offered: B.A., B.S., M.S., Ph.D.; M.S. in biology, joint with the Biology Department.

Undergraduate Program

The undergraduate degree program in zoology provides a sound liberal arts background for a career in biological science. Graduates may enter directly into graduate school or industry. The program also prepares students for advanced degree programs leading to the research, teaching (university, four-year college, community college, secondary and primary schools) or health professions (medicine, dentistry, paramedical).

The basic courses offered in the Department serve both its own majors and others planning to enter health-related professions, or fields such as psychology, anthropology and sociology, as well as students in other fields who have a cultural interest in biological science.
A one-semester introduction, 37.3 Principles of Animal Biology, stresses the major concepts and is ordinarily the first course taken in the Zoology Department. Majors must also take basic courses in genetics (usually immediately following the introductory course), evolution and vell physiology. Beyond this "core" curriculum, the student has a virtually unrestricted choice of 100-level courses in zoology, a minimum of 33 semester hours. A student may substitute a 100-level coursework in other areas of natural science or in mathematics (excluding the specific course requirements listed below) for up to eight hours of the 33-hour total in zoology. Courses required for a B.S. or B.A. degree in zoology are:

In other departments:

8W:10 Expository Writing 3 s.h.
2ZM:16 Calculus for the Biological Sciences 3 s.h.
or
2ZM:25 Calculus I 4 s.h.
4L:1-14 Principles of Chemistry I 6 s.h.
or
4L:16 General Chemistry Laboratory 2 s.h.
or
4L:17 Organic Chemistry I 3 s.h.
or
6P:100 The Chemistry of Biological Materials 3 s.h.
or
29:117-18 Introductory Physics I-II 8 s.h.
or
29:117-12 College Physics 8 s.h. 28-29 s.h.
In Zoology:

37.3 Principles of Animal Biology 5 s.h.
37:128 Fundamental Genetics and 3 s.h.
37:292 Fundamental Genetics Laboratory 2 s.h.
or
37:109 Genetics 3 s.h.
27:125 Cell Physiology 4 s.h.
40:101 Evolution 4 s.h.
Total 17-18 s.h.
Electives zoology, other science, mathematics 15-18 s.h.
Courses which may be used to fulfill the 93-hour requirement in zoology include 37.3 and any course numbered 101 or above (other than 37.12), except that no more than three hours can be included from 37-101 to 109 in addition, up to 8 hours of courses beyond the requirements in other natural sciences and mathematics may be substituted, subject to the following limitations:

(a) Courses taken in the departments of Botany, Chemistry, Zoology, Physics and practical departments of the College of Medicine must be numbered 101 or above; any such 100-level course may be used except 12.152 A Point in Crisis and other comparable courses directed primarily to nonmajors students. (b) Any course taken in the Division of Mathematical Sciences must have 2ZM:25 Calculus I as a prerequisite.

Students are encouraged to take courses in zoology and other sciences beyond the required minimums.

Honors

Students in the college-wide Honors Program may earn a Honors degree in zoology by completing a total of at least six semester hours in 37-188 Honors Laboratory Research, 37:187 Honors Readings in Zoology, and 37:188 Honors Seminar in Zoology.

Introduction to Research

The Department offers membership in a small, active group of undergraduates with common interests, and association with one of the Department's research groups. Experiments, running discussion of current research, the study of specialized topics and attendance at research activities are outcomes of practicing scientists in which the students are introduced. An introduction to research activities can be obtained within or outside the scope of the Honors Program and may be pursued throughout the academic year.

Graduate Programs

The graduate programs of the Department are designed to prepare students for different kinds of professional activities, including teaching at various levels, participation in research in private, educational, or governmental institutions, or in other kinds of professional service, frequently involving some planning or administrative functions. More than 90 percent of the doctorates of the last two decades have been engaged in college or university teaching. A substantial number of students completing their training with an M.S. degree have obtained technical or professional positions, some of which require independent responsibility in performance or planning.

Each member of the Department carries out research. Programs in cell biology, developmental biology, genetics, molecular biology, neuroanatomy, ecology, behavior, physiology and parasitology are included in the Department, and most of these have auxiliary aspects which are served through work in other departments, sometimes with joint sponsorship of faculty in these departments. For purposes of student advising, these programs have been consolidated into four general areas: developmental biology, ecology and behavior, genetics, physiology. Each student selects one of these areas and, in the last quarter of the academic year, he or she chooses a thesis advisor for the thesis. Each quarter, the student meets with the thesis advisor for the thesis and with the committee for the thesis. The student is expected to pursue the thesis until it is accepted. The candidate must pass the oral examination before being awarded the degree.
examination based mainly on the work reported in the thesis and on related subject areas.

The M.S. degree without thesis requires 34 semester hours of graduate credit and a library research report. No more than four semester hours of credit may be granted for the research report. Credit may be earned in graduate courses in zoology or related sciences, these courses to be determined in consultation with the student's thesis committee and tailored to fit the student's background and career goals. Credit received in courses at the 100-level or above, with the exception of courses in zoology required to make up deficiencies revealed by the diagnostic examination (see above), may be included in the 34-hour minimum if approved by the advisory committee. On completion of the hours requirement and acceptance of the research report by the student's faculty sponsor, the student must pass a written examination covering his or her graduate program in zoology, including the area of the student's report.

The M.S. Degree in Biology

Thirty semester hours of graduate credit are required of all students who earn the degree with a thesis. Ordinarily six to eight semester hours are designated to thesis research and writing, eight to twelve semester hours to graduate courses in zoology, eight semester hours to graduate courses in botany and the remaining six semester hours to free electives. Following acceptance of the thesis, the candidate must pass a written examination covering graduate programs in botany and zoology. This is followed by an oral examination based mainly on the work reported in the thesis. The Biology and Zoology department will offer a 34-semester-hour program leading to the M.S. in biology, without a thesis.

The Ph.D. Degree in Zoology

For each Ph.D. degree candidate a dissertation committee is formed, of which the candidate's faculty sponsor is chairman. The committee is charged with establishing those courses and policy and requirement which the candidate must meet. The background of the candidate, and his or her current and prospective research interests, are taken into consideration. The committee also establishes that portion of the formal coursework or particular proficiencies (such as ability to read certain modern foreign languages) which will be demanded of the student before admission to comprehensive examination. In this examination the candidate is expected to demonstrate knowledge of the fundamentals of zoology and mastery of one or two specialized fields. Usually the student has demonstrated some ability in research through the M.S. thesis, or through equivalent research work. In his or her research, which culminates in the doctoral dissertation, all of the requirements for a scholarly piece of work will be demanded. The acceptance of the thesis by the Department will be followed by the final oral examination over the thesis itself and the specialized field which it represents.

Graduate Student Awards and Aids

Nearly all of the graduate students in the Department receive some support, the largest portion from teaching assistantships, research assistantships, and teaching fellowships provided by the University or by individual research grants administered by faculty members. Stipends and full tuition are available in federally funded developmental biology, cell and molecular biology, and neurobiology training programs administered by the Department. Further support is available to postdoctoral fellows. Support through interdisciplinary programs in genetics (predoctoral) and cancer (postdoctoral) is also available.

The Department also participates in the University-sponsored program of teaching/research fellowships. Students who apply for any departmental award may be considered for others. If the reviewing committee considers them eligible, the Department provides some support each summer for students who arrange for training at marine laboratories on the coast, or at other appropriate summer stations. Most assistantships and other appointments for the following academic year are funded by April 1, but opportunities occasionally exist for appointments at other times, including the beginning of the second semester. Requests for appointment should include clear statements of research interest. If such interest has been defined at the time of application.

Orientation

Prior to registration in August, all new graduate students 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 required to take specific courses to enhance their background in the area. These requirements are made to ensure breadth of background for specialized graduate work. Any deficiencies in mathematics, chemistry or physics are to be made up during the first year.

Applicants with a degree other than biology or zoology may request modification of certain of the area requirements; this is the province of the student's degree committee.

Admission

An applicant for graduate admission should have a grade-point average above 3.0 and a Graduate Record Examination Aptitude (Verbal and Quantitative) score above 1300. The Graduate Advanced Biology score should also be submitted. Although the Department prefers applicants who have completed undergraduate programs much like its own, it will consider applicants with other backgrounds, such as botany, zoology, biochemistry and other related areas.

Special Facilities

The Department is housed in a cluster of contiguous buildings, with additions completed in 1965 and 1971 more than doubling previously available research space, nearly doubling teaching space and permitting enlargement of the departmental library. The laboratory is equipped with the latest in biological instrumentation. Special facilities in the Department depend heavily upon the availability of living animals, and the Department is provided with animal care facilities for mammals, birds, reptiles, amphibians, fishes, invertebrates, including protozoa. Special facilities exist for research with viruses, fruit flies and marine organisms. At least 15 walk-in and reach-in environmental chambers are provided for special culture or animal care needs.

There are four transmission electron microscope, including one for teaching and student research purposes, and one with high resolution capabilities. The Department
Courses

**Primarily for Undergraduates**

*Usually the courses numbered 371 through 374 may not be repeated toward the biology major.*

**372 Principles of Animal Biology** 3 s.h.
- Forms of living organisms, metabolism, and reproduction; development, genetics, ecology, endocrinology.
- Introductory college chemistry (CHEM 1201 or 1205) strongly recommended.
- Should be taken by transfer students who have not had an advanced course in zoology.
- Prerequisites: for all courses in the Department numbered 370 and above.

**373 Topics in Biology** 1 s.h.
- Internal lectures and discussions; enrollment limited to students with proper permissions; set each semester prior to instructor. Prerequisites: for preprofessional majors.
- Prerequisites: 372 and three credits of grade participation.

**374 Principles of Evolution** 2 s.h.
- Natural, artificial, and mechanical evolution. Primarily for nonmajors: MTH 121.

**376 Field Studies: Fresh Water and Marine Biology** 2 s.h.

**378 Bats, Biodiversity and Evolution** 2 s.h.
- A course for nonmajors wanting to learn about the history of life. Bats are a unique group of mammals with an even furtherance, knowledge of how the bat's sensory system and the environment produce behaviors and adaptation examples are drawn from throughout the animal kingdom to illustrate fundamental processes and how evolutionary trends. No prerequisites.

**379 Introduction to Animal Behavior** 2 s.h.
- Survey of principles and concepts in animal behavior and their implications for humans. Interest for nonmajors: majors by permission. Prerequisites: a course in biology or psychology.

**379 Principles of HumanEcology** 4 s.h.
- Health in human families and populations; genetic bases of normal and abnormal traits; health behavior and its determinants; lectures and discussions. Prerequisites: introductory course in biology.

For Undergraduates and Graduates

**379 Introductory** 4 s.h.
- Lectures, readings, lab, lab on germ cell reproduction, fertilization, early development, embryogenesis, and physiological education of females and males with emphasis on variation.

**379 Comparative Zoology** 4 s.h.
- Survey of topics in evolution and vertebrates. Lectures, demonstrable, laboratory. Prerequisites: 379 or equivalent.

**379 Introduction to Developmental Biology** 3 s.h.
- Survey of fundamental mechanisms involved in differentiation, organogenesis, morphogenesis, and fatalistic approach to the molecular, cellular, and tissue levels of development of organisms. Prerequisites: 372 or 374.

**379 Cell Physiology** 4 s.h.
- Functions common to cell, tissue, and cellular systems. Cellular physiology, synthesis of macromolecules, expression of genetic information, control of metabolism, cell cycle, membranes and transport, respiration, movement, lecturers, laboratory, and discussion. Prerequisites: 379 or 375. 371-101 may be completed, BIOL 2011 or 2012, BIOL 1911 or 1912, or consent of instructor.

**379 Developmental Biology Laboratory** 2 s.h.

**379 Invertebrate Zoology** 4 s.h.
- Invertebrates in the history of the earth, behavior of prehistoric species, evolution and industrial invertebrates ("worm") phyla, arthropods, echinoderms, mollusks, Porifera, and the history and geographical areas of the invertebrate. Prerequisites: 379 or equivalent.

**379 Vertebrate Zoology** 4 s.h.
- Structure and systematics, evolution and wildlife protection of the vertebrates: problematics, amphibians, reptiles, birds, and the history and geographical areas of vertebrate social systems. Prerequisites: 379.

**379 Comparative Vertebrate** 4 s.h.
- Morphology, phylogeny, and general importance of parasites in vertebrates and invertebrates primarily for experimental, emphasis on host-parasite relationship. Prerequisites: 379 or equivalent.

**379 Comparative Physiology** 4 s.h.
- Designed for an initial lecture and laboratory experience in physiology emphasizing an animal general physiology of the organism as a comparative approach examining examples from both invertebrates and vertebrates and additional themes emphasizing the relationship of structure and function and the principles of excretion as they apply in the vertebrate and invertebrate circulatory systems. Prerequisites: 379, 379 biologic, or consent of instructor.

**379 Plant Classification** 4 s.h.
- A course in the classification basis of excretion for human and animal populations: includes both theory, classification, and conservation lectures and discussions. Prerequisites: extensive knowledge and understanding of the subject. Prerequisites: 379 or equivalent.

**379 Comparative Physiological Laboratory** 1 s.h.
- Prerequisites: 379, 379 laboratory. Complements 379, 379. Students are limited to one of 379, 379 or 379, laboratory.

**379 Animal Classification** 4 s.h.
- Principles, methods, and analysis of excretion with a closed system of biological classification. Prerequisites: 379 and 379 laboratory. Prerequisite: BIOL 2111 or BIOL 2112. 379 and 379, laboratory. Prerequisites: 379 or equivalent.

**379 Ecology** 2 s.h.
- Principles, methods, and analysis of excretion with a closed system of biological classification. Prerequisites: 379 and 379 laboratory. Prerequisite: BIOL 2111 or BIOL 2112. 379 and 379, laboratory. Prerequisites: 379 or equivalent.

**379 Field Studies** 2 s.h.
- Field laboratory in the natural history of the earth, behavior of prehistoric species, evolution and industrial invertebrates ("worm") phyla, arthropods, echinoderms, mollusks, Porifera, and the history and geographical areas of the invertebrate. Prerequisites: 379 or equivalent.

**379 Invertebrate** 4 s.h.
- Structure and systematics, evolution and wildlife protection of the vertebrates: problematics, amphibians, reptiles, birds, and the history and geographical areas of vertebrate social systems. Prerequisites: 379.

**379 Comparative** 4 s.h.
- Morphology, phylogeny, and general importance of parasites in vertebrates and invertebrates primarily for experimental, emphasis on host-parasite relationship. Prerequisites: 379 or equivalent.

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- Principles, methods, and analysis of excretion with a closed system of biological classification. Prerequisites: 379 and 379 laboratory. Prerequisite: BIOL 2111 or BIOL 2112. 379 and 379, laboratory. Prerequisites: 379 or equivalent.
Courses Primarily for Graduates

37.281 Molecular Genetics Seminar 3 1.0 h.
Readings, reports, discussions on topics of current interest, with implications for fields of genetics and development. May be repeated. Prerequisite: consent of instructor.

37.283 Cell and Molecular Development 6 2.0 h.
Current discussions of topics of current interest in development biology. Prerequisite: consent of instructor.

37.293 Genetics Seminar 3 1.0 h.
Lectures, discussions, seminar on selected topics in genetics. May be repeated. Prerequisites: 37.125 or consent of instructor. Same as 61.210, 61.250, 99.210.

37.213 Seminar: Zoology 6 2.0 h.
Weekly lectures on current research; invited speakers.

37.216 Introduction to Electron Optical Research Techniques 6 2.0 h.
Lecture and laboratory on methods of electron fixation, embedding, shadowing, electron diffraction and imaging, theory of electron microscopy, essential photographic techniques. Prerequisite: 37.112 or consent of instructor. Same as 61.216, 99.216, 99.256.

37.215 Seminar: Embryology 2 1.0 h.
Selected topics of current research literature in topics of morphology and development. Credit toward major or minor only.

37.216 Seminar: Heredity and Behavior 2 1.0 h.
Readings and reports on topics concerning heredity and behavior. Prerequisite: 37.115 or equivalent.

37.212 Seminar: Theriological Ecology 2 1.0 h.
Current topics in ecology. Prerequisite: 37.122 or consent of instructor.

37.225 Advanced Techniques in Light Microscopy 6 2.0 h.
Theory of modern techniques in light microscopy, with some demonstrations, including bright field, dark field, phase contrast, Nomarski, fluorescence.

37.227 Seminar: Datafacs 2 1.0 h.
Discussions, readings in current evolutionary theories.

37.248 Ecological Research, Analysis, and Writing 2 1.0 h.
May include experimental design, hypothesis testing, sampling methods, computer, simple modeling, and scientific writing. Participants may be asked to analyze and critique ecological literature, and to prepare a scientific paper of their own. Prerequisite: graduate status and consent of instructor.

37.213 Seminar: Behavioral Ecology 2 1.0 h.
Discussions, readings, reports on topics relating to interactions between behavior and ecology in populations and ecosystems. Prerequisites: course each in ecology and behavior, or consent of instructor.

37.226 Developmental Genetics 2 1.0 h.
Lectures, readings, discussions on genetics in development. Prerequisites: 37.216 or equivalent.

37.235 Seminar: Behavioral Genetics 3 1.0 h.
Prerequisites: 37.215.

37.244 Laboratory: Behavioral Science Seminar 3 1.0 h.
Core student faculty discussion of current literature in research areas bearing on neuroscience and behavior. Same as 60.255, 72.255.

37.211 Seminar: Cell-Physiology 2 1.0 h.
Current topics in physiology studied by critical reading of the scientific literature. May be repeated for credit. Prerequisite: 37.150 or consent of instructor.

37.277 Seminar in Cellular and Molecular Biology 1 1.0 h.
Interactions between culture and development processes. Special emphasis on seminar topics. Prerequisite: consent of instructor. May be repeated for credit. Same as 60.277, 61.277, 71.277, 72.277, 99.277.

37.291 Seminar in Neurobiology 2 1.0 h.
Presentations of current literature. Prerequisite: consent of instructor.

37.282 Readings in Dynamic Neurotransmission 2 1.0 h.
Current research on the biochemistry, anatomy and physiology of neuronal transmission in order to understand mechanisms and functional role of ligands, and to understand the development of new biologically active course in chemistry, or consent of instructor.

37.279 Advanced Electromicroscopic Techniques 1 1.0 h.
Inception and introduction of course presenting advances in biophysical techniques used by different laboratories. Prerequisite: consent of instructor. Same as 60.279, 60.294, 71.279, 72.279, 99.279.

37.290 Advanced Electron Microscopic Techniques 4 1.0 h.
Continuation of 37.279, but emphasizes experimental aspects of electron microscopy, including negative staining, shadow casting, cryosubstitution and autometallographic applications. Prerequisites: 37.215, 61.256, and consent of instructor.

37.299 Problems in College Biology 1 1.0 h.
Discussion of essential and practical problems. Restricted to graduate students.

37.361 Research: Zoology 1 1.0 h.

37.360 Independent Study in Zoology 1 1.0 h.
College of Business Administration

The College is organized into four academic departments: Accounting, Business Administration, Economics and, jointly with the College of Education, the Department of Business Education.

The undergraduate and graduate programs of the College are fully accredited by the American Assembly of Collegiates Schools of Business.

Research and executive development activities are supported by the Center for Labor and Management, Institute for Insurance Education and Research, Institute for Economic Research, and Industrial Relations Institute.

Undergraduate Study

The College offers the Bachelor of Business Administration degree in all four departments. The B.B.A. student completes background studies either in the College of Liberal Arts at Iowa or in another institution and usually enters the College of Business Administration as a junior.

Program Requirements

To assure educational breadth and to permit limited specialization at the baccalaureate level, Iowa’s B.B.A. curriculum requires 120 semester hours for graduation, with at least 45 hours in business courses and at least 48 hours in nonbusiness courses. Limited specialization is affected through the student’s option of a designated major or areas of concentration.

The last 30 (or 45 of the last 60) semester hours must be earned in residence at Iowa following admission to the College of Business Administration; at least 24 semester hours of credit in courses offered by the College of Business Administration, and at least eight semester hours of credit in the student’s major or six semester hours in each area of concentration, must be earned at Iowa.

A student who has not satisfied the quantitative methods, psychology/sociology, accounting and economics requirements when admitted to the College must undertake them in the first enrollment and complete until successfully completed. In general, students should complete all common requirements by the end of the junior year.

To graduate, the B.B.A. candidate must have at least a 2.0 grade-point average on all coursework, on all coursework attempted at Iowa, on all business and economics coursework attempted, on all business and economics coursework attempted at Iowa, on all coursework attempted in the major or area of concentration, and on all coursework attempted at Iowa in the major or area of concentration.

Common Requirements

The B.B.A. candidate must satisfy these minimum common requirements:

- *Rhetoric-communications 6 s.h.
- *Historical-cultural 6 s.h.
- Literature 6 s.h.
- *Natural sciences (excluding mathematics) 3 s.h.
- *Psychology or sociology 6 s.h.
- *Quantitative methods 8 s.h.
- 6A1 Introduction to Financial Accounting 3 s.h.
- 6A2 Introduction to Managerial Accounting 3 s.h.
- 6E1 Principles of Economics 4 s.h.
- 6E2 Principles of Economics 4 s.h.
- 6B13 Financial Management 3 s.h.
- 6B31 Introduction to Marketing 3 s.h.
- 6B47 Introduction to Law 3 s.h.
- 6B51 Administrative Management 3 s.h.
- 6B72 Computer Analysis 3 s.h.
- Required course in business policy 1 s.h.

*Consult the college’s undergraduate office concerning required and alternative methods for meeting the requirements listed above.

In addition, the student must complete a major area of study or two areas of concentration. The requirements for a specific major are established by the departments of the college.

An area of concentration consists of a combination of related courses, selected by the student and approved by the adviser, which are designed to meet a specific academic or career objective. Final approval...
will be made by the advisor dean's office. Each area must consist of at least three courses (3 s.h.), and two courses in each area must be offered by the College of Business Administration.

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 exemption with or without credit for some of the common requirements of the College. Information on the CLEP examinations is available from the Liberal Arts Advisory Office.

Maximum Schedule

Course schedules of more than 18 semester hours for a semester or nine for a summer session require approval of the academic dean.

Pass/Fail Grading

Of the total semester hours required for a B.B.A. degree, up to 32 may be taken on a pass/fail basis with the consent of the adviser and Provost. However, a student may not count more than 16 semester hours of pass/fail credit toward the last 60 semester hours of coursework. Courses with the BA, BB or BS prefix which are taken to satisfy the common business requirements may not be taken pass/fail, nor may courses in the student's major area or areas of concentration. Pass/fail registration must be completed during the first three weeks of a semester and may not exceed two weeks in a summer session. For courses taken on a pass/fail basis, an earned grade of C or above is recorded as a P; otherwise, the grade earned (D or F) is recorded.

Second-Grade-Only Option

Unless obvious regression is involved and with permission of the advisor dean, a student may be permitted to select a University course and have only the grade and credit of the second registration used in calculating his or her cumulative grade-point average. This option may be applied to a maximum of 10 semester hours of work.

Admission

Admission is normally at the beginning of the junior year. Second-semester sophomores may be admitted if an accelerated program record has been established. Unconditional admission requires at least a 3.25 grade-point average (A = 4.0) in all college-level courses undertaken, including all courses undertaken at Iowa State and all business and economics courses. The applicant should also have satisfied the following common requirements: rhetoric, communication, psychology or sociology, quantitative methods, accounting and economics, and either history or cultural education or literature.

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 and economics courses taken during the freshman and sophomore years are counted toward the B.B.A. degree only if such courses are normally offered at lower division courses at Iowa.

Eligibility of the minimum requirements does not ensure admission. The College's admissions committee reviews all applications and selects the applicants who appear the best qualified. Students who have minor deficiencies in meeting admission requirements may be granted conditional or probationary admission.

Interdepartmental Graduate Programs

Master of Business Administration

The Master of Business Administration (M.B.A.) program is designed for individuals preparing for professional administrative careers in the business or public sector. The program gives the individual a means of enhancing career opportunities and at the same time provides an industry and government with the professional personnel required in a dynamic economy.

The curriculum is designed for candidates whose undergraduate majors were in liberal arts, science, engineering or other nonbusiness areas, as well as graduate students in schools or colleges of business administration.

For the student who has taken no prior business administration courses, 32 semester hours of coursework are required. For the student with prior coursework in business administration, certain of the foundation courses may be waived. However, in all cases, a minimum of 33 semester hours of graduate work is required. The following foundation courses, totaling 24 semester hours, may be waived on the basis of exemption examinations or equivalent coursework of high quality:

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>6A:162 Financial Accounting</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6B:163 Managerial Accounting</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6B:164 Managerial Finance</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6B:185 Management of Operations</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6B:196 Marketing Management</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6B:197 Quantitative Methods</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6B:198 Organization Theory</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6E:190 Consumer and Firm Behavior</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>6E:191 National Income Analysis</td>
<td>2 s.h.</td>
</tr>
</tbody>
</table>

In the M.B.A. core, the student has the opportunity to continue the broad study begun in the sequences of courses listed above and pursue in greater depth the special interests associated with his or her own career objectives. In addition to courses required of all students, each individual elects one area of concentration and, with the assistance of the M.B.A. adviser, selects at least six semester hours of coursework in that area.

The following are the core course requirements, totaling 33 semester hours:

Integrated Core (18 s.h.):

6B:214 Managerial Accounting | 3 s.h. |
6B:230 Administrative Science | 3 s.h. |
6B:235 Administrative Policy | 3 s.h. |
6B:271 Statistical Methods | 3 s.h. |
6B:273 Managerial Economics | 3 s.h. |
6B:276 Operations Research | 3 s.h. |

Applied Core (9 s.h.):

Three of the following, or two of the following and one approved elective:

6B:215 Financial Policy | 3 s.h. |
6B:216 Financial Planning | 3 s.h. |
6B:218 Financial Management | 3 s.h. |
6B:220 Financial Markets | 3 s.h. |
6B:221 Investments | 3 s.h. |
6B:222 Real Estate Finance | 3 s.h. |
6B:223 Real Estate Investment | 3 s.h. |
6B:224 Real Estate Planning | 3 s.h. |
6B:225 Real Estate Economics | 3 s.h. |
6B:226 Real Estate Development | 3 s.h. |
6B:227 Real Estate Law | 3 s.h. |
6B:228 Real Estate Valuation | 3 s.h. |
BUSINESS ADMINISTRATION

Doctor of Philosophy in Business Administration

The Ph.D. program is intended for individuals preparing for faculty positions in university or collegiate schools of business administration and for business or government careers as research directors, staff specialists and consultants. The program is sufficiently flexible to accommodate specialization according to the student’s interests, background and objectives.

Foundation Areas

The purpose of the foundation areas is to develop competency in research methods and to provide the background needed for study in any sequence of more specialized courses. The student should complete the requirements in the foundation areas before proceeding to the specialized areas. The requirements in the foundation areas may be satisfied by passing a qualifying examination or by successfully completing each course. The Ph.D. level course requirements are:

Ecological Theory
6E:203 Microeconomics I 3 s.h.
6E:204 Macroeconomics I 3 s.h.

Statistics and Quantitative Analysis
6B:286 Statistics for Decision Making I—Ph.D. 3 s.h.
6B:287 Statistics for Decision Making II—Ph.D. 3 s.h.

Behavioral Sciences
6B:266 Behavioral Science and Management Organizations 3 s.h.

Research Methods
One or more courses recommended and approved by the advisor.

The student is also required to satisfy the common body of knowledge requirement of the American Assembly of Collegiate Schools of Business (AACSB). This means the candidate’s undergraduate or graduate coursework should include study in the following areas: accounting, quantitative methods, organizational behavior, management, finance, marketing, and the economic and legal environment pertaining to profit and/or nonprofit organizations.

Specialized Areas

Preparation for dissertation research begins with the student selecting two specialized areas of study. One or both may be from the foundation areas and one may be from outside the College. Typical areas include accounting, finance, management, marketing, agricultural business, insurance, industrial relations, administrative economics, and other business-related disciplines. Four graduate-level courses are normally required in each area.

The student must pass written comprehensive examinations in both areas. Each examination assumes that the student has completed requirements which provide a mastery of the field which is being examined. Upon completion of the written examinations, the student must pass an oral comprehensive examination.

The Dissertation

Completion of the research and writing associated with the dissertation normally requires one year of full-time effort. Upon completion the candidate must defend the dissertation in an oral examination.

Graduate Admission

See “Graduate College.”

Facilities

The College of Business Administration is located in Phillips Hall, an air-conditioned, 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 and Economics libraries, in addition to a wide range of classroom facilities.

Extensive research materials for business and economics are maintained in the Main Library, and the facilities of the University Computer 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 is familiar with the current form of computer programs and data tapes to service user needs.

Center for Labor and Management

As a major continuing education arm of the College, the Center for Labor and Management provides relevant information to management, labor and government representatives in Iowa and the Midwest. Current labor relations and administrative knowledge is disseminated through on- and off-campus conferences and through a research-oriented publication series. Organizational research and development projects give students experience in research and teaching as well as the opportunity to discuss current societal problems with private and public sector labor and management officials.

The 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’s new campus in Iowa City and at other locations across the country. It also engages in contract research related to insurance for public and private organizations.

The Institute for Economic Research

The Institute for Economic Research exists in order to facilitate comprehensive and continuing economic research and to establish a formal mechanism for providing interaction with and economic advice to industry and government. The main objectives associated with the Institute are: to provide economic information, service and advice on a continuing basis to businesses 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.
The Industrial Relations Institute

The Industrial Relations Institute is designed to bring faculty and students together with interests 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. Faculty associated with the Institute are drawn from the departments of Business Administration and Economics and from the Center for Labor and Management.

Accounting

Department chair: El. B. Barnes

The function of accounting is to provide information to decision-makers. It is essential that accountants be able to express their thoughts in an orderly, logical manner in words as well as in figures, and that they be able to relate well to their associates and to customers or clients. Success in professional accounting also requires the ability to recognize the merits of new ideas and apply them to the improvement of current practice.

The Professional Program in Accounting is designed to improve the technical proficiency and the conceptual, analytical, and communication skills required to succeed in the accounting profession. The program prepares candidates for careers in all areas of accounting, including the necessary educational qualifications for professional examinations such as the CPA, CMA, and CIA.

Students ordinarily enter the Professional Program in Accounting after three years of preprofessional work which emphasizes business and the liberal arts, and which satisfies the general education requirements of the University and the College of Business Administration.

The program is also open to students with undergraduate degrees. The degree need not be in a business major; graduates of the program have included, for example, students with bachelor's degrees in history and engineering.

Accounting Programs

A flexible two-year program is available to both graduates and undergraduates.

First Year

<table>
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**Must be completed during the spring semester of the junior year or the following summer.**

**May be taken during the junior year.**

After completing first-year coursework, the student will have a full year to prepare to receive the B.B.A. in accounting.

A student entering with a B.B.A. in accounting from another university usually is required to take only the second year of the professional program.

Second Year

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</tr>
<tr>
<td>6A:250</td>
<td>Accounting Issue Series</td>
<td>0-12 s.h.</td>
</tr>
<tr>
<td>6A:261</td>
<td>Graduate Accounting electives</td>
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Upon satisfactory completion of the 30-hour requirement for the second year, the student receives the Master of Arts degree in accounting.

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**Must be completed during the spring semester of the junior year or the following summer.**

**May be taken during the junior year.**

After completing first-year coursework, the student will have a full year to prepare to receive the B.B.A. in accounting.

A student entering with a B.B.A. in accounting from another university usually is required to take only the second year of the professional program.

Second Year

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Upon satisfactory completion of the 30-hour requirement for the second year, the student receives the Master of Arts degree in accounting.

Candidates for the Master of Arts degree in accounting must maintain a 3.0 grade-point average in all graduate-level accounting courses and must pass an oral comprimend-
Ph.D. Program

Candidates wishing to earn a Ph.D. degree in accounting should refer to the description of the program leading to Doctorate of Philosophy in the College of Business Administration section.

Courses

Primarily for Undergraduates

64:0108 Cooperative Education Training Assignment 2 s.h.

64:1100 Introduction to Financial Accounting 3 s.h.
Survey and analyses of contemporary accounting information systems, emphasizing external reporting by a firm to its investors and creditors. Prerequisites: sophomore standing.

64:1101 Introduction to Managerial Accounting 3 s.h.
Survey and analyses of contemporary accounting information systems, emphasis on preparation of information in management decision making. Prerequisites: 64:1100.

Primarily for Undergraduates and Graduates

64:1105 Introduction to Taxation 3 s.h.
Introduction to federal income taxation; coverage includes withholding, corporate, and partnership income tax items and regulations; emphasis on developing a broad perspective of the wherewithal, administration, and details of the federal income tax law. Prerequisites: grades of A or B in 64:911, 64:92.

64:1109 Financial Accounting Reporting 3 s.h.
An examination of the components of financial statements, the nature of the data comprising the financial statements, and the methods of determining the data reported. Prerequisites: grades of B or better in 64:911, 64:92, 64:93, or 64:102.

64:1106 Cost Accounting for Management 3 s.h.
Selection and presentation of information which will serve to support and evaluate management in planning and controlling the operations of an enterprise. Includes cost estimating and reporting, cost-volume-profit analysis, variance analysis, cost allocation, quantitative techniques integrated with more traditional approaches. Prerequisites: grades of A or B in 64:911, 64:92; senior standing; 68:79, 68:72.1.

64:1313 Financial Accounting I 3 s.h.
Principles in a three-course sequence dealing with financial accounting concepts and practice included in income statement and balance sheet accounts. (bowbung important in business and accounting education, in current business and government operations, and in current accounting education.) Emphasis on understanding the application of stability in sampling and analytical review; audit reports and external influences on audit practice. Prerequisites: 64:1101 or 64:1108; senior standing.

64:1314 Financial Accounting II 3 s.h.
Second course in a three-course sequence dealing with financial accounting practice: discusses such topics as accrual basis of the balance sheet, tax laws, taxation, and related problems. Prerequisites: grades of A, A- or B+ in 64:1313.

64:1315 Financial Accounting III 3 s.h.
Third course in a three-course sequence dealing with financial accounting practice: includes business combinations, reorganizations, and consolidations, as well as recent FASB Accounting Standards and Interpretations; specific consideration also given to accounting and reporting problems in governmental and nonprofit enterprises. Prerequisites: 64:1102, 64:1314; senior standing.

64:1416 Special Topics in Taxation 1-3 s.h.
Elective course for junior accounting majors: advanced topics in taxation; taxation as practiced by tax professionals; recent tax changes. Prerequisites: 64:1105, 64:1106, 64:1108; senior standing.

64:1417 Managerial Accounting I 3 s.h.
Survey of managerial accounting topics and techniques as they relate to production planning and control. Emphasis on the impact of management decisions on business performance. Prerequisite: consent of instructor.

64:1516 Financial Information for External Users 3 s.h.
Concepts and methods of corporate external reporting; theoretical basis of current reporting practices analyzed in context of economic decision making and alternative accounting methods. Not open to accounting majors. Prerequisites: 64:1100 or equivalent; grades of A, A- or B+ in 64:1106.

64:2107 Accounting Theory I 3 s.h.
First course in a two-course sequence on accounting theory. Utilizing the framework of the theory course in practical earning accounting situations. Focus in Theory I is on among accounting alternatives in external reporting; includes account theory, capital budgeting, variance minimization, and performance measurement. Prerequisites: 64:1101, 64:1106.

64:2108 Accounting Theory II 3 s.h.
First course in a two-course sequence on accounting theory, utilizing the framework of the theory course in practical earning accounting situations. Focus in Theory I is on among accounting alternatives in internal reporting; includes account theory, capital budgeting, variance minimization, and performance measurement. Prerequisites: 64:1101, 64:1106.

64:2109 Intermediate Accounting I 3 s.h.
Introduction to advanced accounting topics in managerial accounting, tax accounting, and advanced cost accounting methods. Additional topics include computer accounting, advanced financial accounting, and advanced cost accounting methods.

64:2200 Accounting Information Systems 3 s.h.
Creation and design of accounting information systems and related procedures on an evaluative and evaluation of information systems through a survey of the design and methodology, software problems which can arise in such applications. Prerequisites: 64:1100.

64:2201 Auditing and Regulations of Accounting Practice 3 s.h.
Introduction as a control function, as well as government regulation and taxation on current financial reporting and current practice by public accounting firms with contemporary problems in auditing with and the government agencies which regulate or influence accounting practice. Prerequisites: 64:1105, 64:1106.

64:2301 Research in Taxation 3 s.h.
Current topics and preparation for conducting research; quantitative emphasis on current areas of taxation. Prerequisites: 64:1105.

64:2302 Contemporary Issues in Accounting 3 s.h.
Specific topics dealing with contemporary accounting information systems, including various topics in accounting, emphasis on current problems and issues. Prerequisites: 64:1105, 64:1106, 64:1108; senior standing. Prerequisite: 64:2301.

64:2303 Federal Taxation 3 s.h.
Designed primarily for the student who seeks an accounting career in public accounting or government. Prerequisites: advanced topics in tax estimation, analysis, analysis of financing, and regulations. Prerequisites: 64:1105, 64:1108.

64:2410 Investigative Research in Accounting 3 s.h.
Methods of research and their usefulness in accounting problems. Consideration given to problem formulation, research design, and research methodology. Each student is expected to complete a major research project. Prerequisites: 64:2301.

64:2501 Accounting Issues Series 3 s.h.
Through topical lecture workshop sessions with accounting practitioners from industry, government, and public accounting, students are exposed to real-world, practical, and problem solving techniques. Normally two sessions each fall and spring semester, four times a fall semester.

64:2516 Advanced Financial Accounting 3 s.h.
Advanced financial accounting topics and contemporary issues, such as, cost-volume-profit analysis, capital budgeting, investments, and methods of preparing financial statements. Prerequisites: 64:1105, 64:1106, 64:1108; senior standing.

64:2805 Banker in Financial Accounting 3 s.h.
Introduction of accounting practices, ethical issues in financial accounting and personal and professional responsibilities; emphasis on the factors which are important to the banker. Prerequisite: 64:2301.

64:2806 Advanced Accounting Issues 3 s.h.
Evolution of accounting thought as applied to the current issues in business and industry. Specific emphasis on the impact of information economics, computerized financial data, and capital asset pricing models, on the financial accounting system choice. Prerequisite: 64:2301.

64:2816 Managerial Accounting I 3 s.h.
Theory and practice of general cost control, marketing, and general cost control in the production, and design of products. Analysis of the costs of resources and their efficient allocation for exchange of goods and services. Prerequisites: 64:1100, 64:1105.

64:2819 Research in Accounting Research 3 s.h.
Research in accounting and related fields such as, financial accounting, tax accounting, and financial management. Prerequisites: 64:1100, 64:1105, 64:1107.
Business Administration

Department Chair: Dennis A. Bluhm

Faculty professors: Jeffrey M. Bebout, John B. Hatton, Charles R. Green, Arlene Knobloch, Charles B. Heath, Peter Schadeburg, Anthony V. Simon, Robert M. Sausby, Ralph A. Stranahan, Dennis J. Vaughn


Degree offered: B.S.A., M.A.

The Undergraduate Program

The purpose of Iowa's undergraduate program in business administration is to give the student a general overview of business with its position in and relationship to society. The program deals with business theory, decision-making, management systems generally, rather than specializing in a particular facet of business organization. Designed to teach students about business rather than how to conduct business, the program's behavioral approach attains the concept of human interaction in business and society at large.

Students gravitating toward the B.S.A. in business administration have a wide range of career choices. The largest number go into marketing. Many are employed by financial institutions and in junior management positions. Others enter government service and other nongovernment fields requiring administrative skills. Many continue their studies toward advanced degrees. There is considerable latitude within career areas. For example, the avenues open to a business administration graduate with a major in marketing include advertising and promotion, costing, product development and improvement, and product distribution.

The student of business administration can choose between two options in fulfilling the degree requirements:

In addition to courses specified in the Colleges general statement, students can select two three-course sequences (usually 6 s.h. each) in areas of concentration approved by a faculty advisor. Two of the courses in each area must be offered by the College of Business Administration. Or in addition to courses outlined in the general statement, students can elect a major in one of the following areas:

Finance
- 68:23 Statistical Analysis
- 68:211 Investments
- 68:113 Financial Markets and Institutions

At least two semester hours of accounting beyond the basic core will also be required, followed by any two of these:
- 68:112 Security Analysis
- 68:114 Commercial Banking
- 68:118 Intermediate Financial Management

Financial Economics
- 68:111 Investments
- 68:153 Financial Markets and Institutions
- 68:173 Managerial Economics
- 68:103 Microeconomics

These are to be selected from any two of the following:
- 68:114 Commercial Banking
- 68:117 Money and Banking
- 68:119 Economics of the Government Sector
- 68:141 Industrial Organization

Insurance
- 68:20 General Insurance
- 68:121 Property and Liability Insurance
- 68:122 Life and Health Insurance

At least one of the following:
- 68:123 Public Economic Security Programs
- 68:124 Risk Management

Six additional hours of courses specified by the student's advisor:

Industrial Relations
- 68:158 Personnel Management

One of the following:
- 68:151 Employment Relations
- 68:152 Labor Relations Legislation

One of the following:
- 68:153 Collective Bargaining
- 68:154 Employee Relations in the Public Sector

Any of the eight courses above not previously chosen, or others designated by area faculty.

Administrative Management
- 68:158 Personnel Management
- 68:161 Individual Behavior in Organizations
- 68:158 Group Behavior in Organizations

One of the following:
- 68:168 Managerial Information Processing and Decision Making
- 68:165 Sales Force Problems in Administrative Management

Management Systems
- 68:71 Statistical Analysis
- 68:160 Management Information Systems

One of the following:
- 68:161 Topic in Management Information Systems

Two of the following:
- 68:168 Managerial Information Processing and Decision Making
- 68:178 Operations Management
- 68:177 Simulation Methods
- 68:178 Topics in Operations Management

A programming language course approved by the student's advisor.
Management Science
60:70 Quantitative Analysis
60:71 Statistical Analysis
Two of the following:
60:176 Decision Theory for Business
60:176 Operations Management
60:177 Simulation Methods
One of the following:
60:172 Managerial Economics
60:178 Topics in Operations Management

Marketing
At least four, but no more than five:
60:132 Marketing Distribution Systems
60:134 Marketing Research
60:135 Consumer Behavior
60:137 Advertising Theory and Planning
60:138 Marketing Communications
60:139 Sales Management
60:141 Senior Seminar in Marketing
60:147 Marketing Management

Master of Arts
The Minor in Arts program in business administration is designed for the student who seeks an opportunity for specialization and/or a research experience. It is assumed that the student has an undergraduate degree in business, or the equivalent. The student without the prerequisite will be required to complete approximately 20 s.h. of additional coursework. The program is available on both a thesis and non-thesis basis. Whereas the student aspiring to be a business or public administrator would normally seek the M.B.A. degree, the M.A. student might be contemplating a research or teaching career in a specialized area of business or employment in a business-related position requiring specialized knowledge. A student may take the Master’s degree as he or she proceeds toward a Ph.D. degree. M.A. program is flexible to permit specialization according to the student’s interests and objectives. The Minor may select a major in finance, insurance, marketing, administrative studies, management systems, industrial relations, or other fields. The Minor may be developed from approved course combinations within the College of Business Administration or, under certain circumstances, elsewhere in the University.

Requirements for the Master of Arts degree with thesis include:

- Major area (12 s.h.)
- Minor area (6 s.h.)
- Economic theory and/or administrative science (6 s.h.)
- Electives (6 s.h.)
- Thesis (3 s.h.)

The Master of Arts degree without thesis requires:

- Major area (12 s.h.)
- Minor area (6 s.h.)
- Economic theory and/or administrative science (6 s.h.)
- Electives (6 s.h.)
- Research methodology (3 s.h.)
- Research reports (two) (2 s.h.)

The minimum number of semester hours for either program is normally earned in courses exclusively for graduate students (200 level), but where appropriate the student may take courses at the 100 level. Courses beyond the minimum semester hour requirement may be required if the student’s undergraduate preparation does not permit him or her to take graduate courses in a selected area.

A student in the thesis program will be expected to defend his or her thesis in an oral examination and, if required, to write a paper and/or oral/senior/master’s examination over his or her coursework. A final oral examination is required in the nonthesis program.

Courses

Primarily for Upper-Division Undergraduates
60:398 Cooperative Education Training Assignment
60:414 Financial Management 3 s.h.
60:399 General Insurance
60:314 Introduction to Marketing
3 s.h.
General introduction to business marketing; meaning environment for organization and its strategies with respect to marketing, business behavior and management of marketing decisions.
60:37 Deduction in Logic
3 s.h.
General theory and structure of logic; Correlation of deductive reasoning and the argument. Prerequisite: 60:225 or equivalent.
60:61 Administrative Management 3 s.h.
Overview of problems associated with management of two-level organizational structures: organizational practices; management science methods emphasizing organizational environment.
60:70 Qualitative Analysis
3 s.h.
Quantitative models and applications to decision making: matrix, linear programming, matrix algebra, game theory, and other selected operations research techniques.
60:71 Statistical Analysis
3 s.h.
Statistical procedures of business evaluation: study of frameworks for making managerial problems; testing techniques; interpretation of data; evaluation of collection and use of census.
60:72 Computer Analysis
3 s.h.
Function of the computer: techniques for its role in problem-solving; correlational developments of computers as models in decision-making with theory of computer and programs written by the student. Programming included only if proper student is in the computer.
60:742 Projects Management
3 s.h.
Organization and management of man-machine systems: production design and implementation; finance, layout and resource handling; job evaluation; production control, etc. Prerequisite: 60:225.

Courses for Undergraduates and Graduate Students
60:181 Student Employment in Business Administration 3 s.h.
Individual student-centered readings in selected topics in business.
60:1171 Investments
3 s.h.
Analysis of the investment market using alternative financial approaches to the problems of the individual; present market for securities; industry development.
60:112 Security Analysis 3 s.h.
Valuation of securities; fundamentals and technical analysis; analysis, economic, and regulatory environments.
60:115 Financial Markets and Institutions
3 s.h.
The role of money and capital markets in the functioning of the economy; money, finance, and financial institutions.
60:116 Commercial Banking
3 s.h.
Analysis of the commercial banks and other financial institutions. Emphasis on terms and concepts of running a bank, its asset and liability policies. May use case studies.
60:119 Futures Trading
3 s.h.
Historical development of futures trading; trading positions and techniques; hedging and speculative uses.
60:118 International Financial Management
3 s.h.
Case study approach. Methods of financing and investment decisions for foreign enterprises of various types of debt and equity capital structure planning: developing financial security plans; costs of capital and capital budgeting. Prerequisite: 60:225 or consent of instructor.
60:123 Selected Topics in Finance
3 s.h.
In-depth study of selected topics in finance not covered by other courses.

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exchange, influence, planning, and problem solving are encompassed in depth. Prerequisites: BIS 101 or equivalent.

62:254 Process in Administration 3.0 A.B. Understanding, practicing, and assessing small groups' influence on social equilibrium, making decisions, understanding organizational behavior, leadership, and organizational change. Prerequisite: BIS 201 or consent of instructor.

62:255 Administrative Science I 4.0 A.B. Organization theory, administrative design, planning, and budget techniques. Prerequisite: BIS 201 or consent of instructor.

62:256 Administrative Science II 3.0 A.B. Stages in the improvement of public administration. Prerequisite: BIS 255 or consent of instructor.

62:257 Behavioral Science and Business Organizational Behavior 3.0 A.B. A broad-based approach to understanding the psychological processes that underlie individual and group behavior in the work environment. Prerequisite: BIS 201 or consent of instructor.

62:258 Behavioral Science and Business Organizational Behavior 3.0 A.B. A broad-based approach to understanding the psychological processes that underlie individual and group behavior in the work environment. Prerequisite: BIS 201 or consent of instructor.

62:259 Behavioral Science and Business Organizational Behavior 3.0 A.B. A broad-based approach to understanding the psychological processes that underlie individual and group behavior in the work environment. Prerequisite: BIS 201 or consent of instructor.

62:260 Behavior Science and Group Processes in Organizations 3.0 A.B. Group dynamics and cooperation in the development of human resources. Prerequisite: BIS 201 or consent of instructor.

62:261 Research in Business Administration 1.0 A.B. Research techniques and methods to analyze business problems. Prerequisite: BIS 201 or consent of instructor.

62:262 Human Resource Management 3.0 A.B. Methods of recruiting, selecting, and training employees in the business environment. Prerequisite: BIS 201 or consent of instructor.

62:263 Managerial Economics 3.0 A.B. Techniques and concepts of economic analysis in business problems. Prerequisite: BIS 201 or consent of instructor.

62:264 Organizational Research 1.0 A.B. Linear programming, systems analysis, and decision-making models applied to business decisions. Prerequisite: BIS 201.

62:265 Systems Analysis 3.0 A.B. An examination of methods used in modeling business processes; human input, output, and operating systems; decision making, experimental design and management information systems. Prerequisite: BIS 201 or consent of instructor.

62:266 Financial Management 3.0 A.B. The financial decisions of business organizations. Prerequisite: BIS 201 or consent of instructor.

62:267 Financial Management 3.0 A.B. The financial decisions of business organizations. Prerequisite: BIS 201 or consent of instructor.

62:268 Field Studies in Business Administration 3.0 A.B. Practical knowledge regarding profit-oriented aspects of business organization, operation, and development applied to a real business, social, or public business firm. Individual and/or teams of students prepare field studies under faculty supervision.

Business Education

Chap: pr. Donald P. Kellea
Kellea: pr. Donald P. Kellea
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The Undergraduate Program

The undergraduate program in Business Education is designed primarily for people who want to become teachers of business subjects at the secondary school level. Students in the program have two options: a majoring including one of several possible options in the College of Business Administration, or electing at least two three-hour sequences from the available options. In addition, students majoring in business education must complete the general requirements for the Bachelor of Business Administration degree, as well as the courses required for the U.S.I. Professional Teaching Certificate.

Business education majors prepare in broad foundations in business administration and economics, as well as specialized professional courses in business education, to prepare them for their first teaching experience. Graduates of the program are qualified for positions in business as well as teaching.

Typically, business education students preparing for teaching two types of business subjects at the secondary school level: one type of program prepares teachers of basic business subjects (e.g., general business, business law, economics, consumer economics, business management, business mathematics, and accounting).

Another type of program is available for the preparation of teachers of office-related subjects (typing, shorthand, word processing, and office practice). In addition to those listed for the basic business teacher, students preparing for the supervision of the second type of program must prepare for the second basic business teacher.
is the exception of the undergraduate program.
The student must choose from one of these options:

**Business Major Option**
Complete the requirements for a major in one of these areas in the College of Business Administration:
- Accounting
- Administrative Management
- Economics
- Finance
- Financial Economics
- Industrial Relations
- Insurance
- Management Systems/Management Science
- Marketing
- Administrative Services (see below)

**Areas of Concentration Option**
Complete two nine-hour sequences from the following areas in the College of Business Administration:
- Accounting
- Administrative Management
- Economics
- Finance
- Financial Economics
- Industrial Relations
- Insurance
- Management Systems/Management Science
- Marketing
- Administrative Services (see below)

**Basic Business (see below)**

**Requirements for the Administrative Services Major**
- 65:02 Business Writing Problems 3 s.h.
- 65:22 Advanced Shorthand and Transcription 2 s.h.
- 65:35 Business Machines Applications 2 s.h.
- 65:112 Word Processing 3 s.h.
- One of the following:
  - 65:135 Organizational Communication 3 s.h.
  - 65:126 Written Communication in Business 3 s.h.

One of the following:
- 65:145 Office Management 3 s.h.
- 65:150 Data Processing with CCISOL 3 s.h.
- Administrative services majors who do not intend to teach shorthand must substitute
  - 65:147 Basic Systems Analysis.

**Requirements for Concentration in Basic Business**
- 65:101 Decision Making for
  - Managers 3 s.h.
- 65:104 Principles of Basic Business 3 s.h.
- One additional course in business administration of economics, approved by advisor: 3 s.h.
- 6 s.h.

**Teacher Certification**
The courses required for the Iowa Professional Teaching Certificate can be found in the College of Education section of this Catalog. In addition, these courses are required of all business education teaching majors:
- 65:191 Principles of Business Education 3 s.h.
- (to be taken in junior year)
- 65:192 Methods: Business Subjects 3 s.h.
- 75:107 Seminar: Curriculum and Student Teaching 1-3 s.h.
- (taken concurrently with student teaching)

**Courses for Nonmajors**
The areas of concentration in administrative services without the teacher certification courses, consisting of a minimum of three courses (6 s.h.) in each area or a total of 18 s.h., can be arranged for students pursuing a nonbusiness degree in business administration.

**The Graduate Programs**

**Certification Only**
This is a special classification for graduate students who have earned bachelor's degrees without fulfilling requirements for a secondary teaching certificate. For this type of program, the student fulfills all certification requirements by completing a sequence of graduate-level education courses (25-26 s.h.) approved by the advisor (see M.A.T. Program below). In addition, the student may be required to complete courses in business administration, accounting, and economics to strengthen undergraduate preparation in business. The business education course
- 65:191 Principles of Business Education is also required. No degree objective is implied, although it is possible to request a change in graduate status. In such instances, the normal faculty review of the student's qualifications would occur before any changes could be made.

**Professional Improvement (P.I.)**
This is a special-status category for graduate students who wish to complete additional coursework without a further degree objective. Students so classified must be formally accepted as P.I. students and must meet regularly with an advisor. At the same time, there is great latitude in the types of courses which are possible. Many students interested in special workshops, seminars, conferences, and institutes are admitted in this category. If such students wish to apply for a degree at a later time, they credit completed while classified as P.I. must be evaluated, and the evaluation is reviewed as if it were a new one for examination purposes.

**M.A. Program**
This nonthesis program in business education is designed for the graduate student who wishes to obtain a teaching certificate and has either a major or a minor teaching area in business administration. Its purpose is to promote professional competence in teaching business subjects in the secondary school or at the community college level.

Upon completion of the courses required for the three areas of study in business education, business administration, and education, the candidate elects for the final comprehensive examinations either a two-hour examination in each area, or a three-hour examination in both education and a three-hour examination in one of the remaining two areas.

A minimum of 22 s.h. must be included in the program with the advance approval, within their feasible distributions:
Business Education

65:201 Foundations of Business Education 3 s.h.
65:260 Directed Readings 1 s.h.
Three of the following:
65:320 Seminar: Basic Business Accounting 2-3 s.h.
65:324 Seminar: Teaching 2-3 s.h.
65:355 Seminar: Office Education 1-3 s.h.
65:327 Seminar: Information Processing 3 s.h.
65:310 Managing Business Instructor 3 s.h.
65:246 Seminar: Business Teaching 2-3 s.h.
Total 12-17 s.h.

Business
Six to 15 s.h. of credit in business administration, accounting, economics, or related business areas, such as business data processing, business communication, office management, or business systems.

Education
Six to 12 s.h. of credit in general education areas which meet the professional needs of the student, such as: core education; educational administration; educational psychology; measurement, and statistics; instructional design and technology; academic, secondary and continuing education; or special education.

Admission Requirements
The student must meet the requirements for admission to the University of Iowa Graduate College. For regular admission, the student must have a G.P.A. of 2.50 and a Graduate Record Examination total score of 1000. If the student's total Graduate Record Examination is less than 1000 and no offsetting evidence of superior ability is available, admission may be conditional. Teaching experience is desirable but not required, and the candidate must hold a valid teacher's certificate.

M.A.T. Program
The Master of Arts in Teaching (M.A.T.) program is a 36-semester-hour nonthesis course of study. It is designed for superior business graduates who have had few or no education courses. The program enables students to enrich their background by completing graduate courses in substantive business and business education areas and in graduate courses which constitute professional preparation for secondary school teacher certification or community college teaching.

Two semesters and two semesters are usually necessary to complete the M.A.T. program, which requires 18 semester hours in business and business education and 20 semester hours in graduate education courses.

The business and business education course must include:

- 65:191 Principles of Business Education 3 s.h.
- 65:192 Methods of Business Subjects 3-6 s.h.

The graduate courses in education must include:

- Educational psychology 3 s.h.
- Philosophy or history of education 3 s.h.
- Observation and laboratory practice (student teaching) 12 s.h.
- One approved elective 2-3 s.h.

Candidates for the M.A.T. degree must pass comprehensive final examinations in business education and in education. These examinations are taken during the session in which the candidate expects to receive the degree.

Admission Requirements
To be admitted to the M.A.T. program, the candidate must have a bachelor's degree in business administration and meet the general requirements for admission to the University of Iowa Graduate College. For regular admission, the student must have a G.P.A. of 2.70 and a Graduate Record Examination total score of 1000. If the candidate's total Graduate Record Examination score is less than 1000 and no offsetting evidence of superior ability is available, the admission may be conditional.

Ph.D. Program
The program is available to qualified candidates who apply to college and university positions as business teacher educators or to administrative positions in business education. Graduates of this program have also assumed administrative positions in other areas of education and in business, industry, and government.

The Ph.D. program is designed to improve the competence of business teachers at the postsecondary school level, primarily four-year college-level teachers of business teacher education programs and to strengthen the research and administrative skills of students aspiring to both instructional and administrative positions in postsecondary and secondary business education programs.

The Ph.D. candidate in business education is expected to satisfy the requirements for two fields of research before taking the comprehensive examinations. The two areas are to be chosen from foreign language, literature, advanced mathematics, computer programming, scientific methods, or other appropriate research tools approved by the advisor.

The doctoral program requires coursework, approved by the advisor, in each of the following areas:

Business Education

Common core recommended:

- 65:201 Foundations of Business Education 3 s.h.
- 65:210 Managing Business Instruction 3 s.h.
- 65:370 Seminar: Business Education Research 3 s.h.
- 65:280 Seminar: Business Education Policy 3 s.h.

Two additional 200-level courses in business education 8 s.h.
Total 18 s.h.

Cognate and Related Areas
Business: A minimum of 9 s.h. in 200-level courses in accounting, business administration, economics, or administrative support systems (including business communications, data processing and systems, and related courses).

Education: A minimum of 6 s.h. in 200-level courses from such areas as curriculum education; educational administration; educational psychology; measurement and statistics; instructional design and technology; postsecondary and continuing education; or special education.

Undergraduate Majors

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, and 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 such fields as business administration, 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.B. degrees in the College of Liberal Arts and the B.B.A. in the College of Business Administration. The B.B.A. degree in economics is designed to allow the student maximum flexibility in achieving a well-rounded liberal arts education. The College of Business Administration requires that the B.B.A. degree in economics emphasize a background in the business fields of accounting, finance, marketing, business law, and management.

For a description of the B.A. and B.B. degree programs in economics, see the College of Liberal Arts section of the Catalog.

Program for the B.B.A. Degree

In addition to the common requirements for students in the College of Business Administration, the B.B.A. degree in economics requires 18 semester hours in 100-level economics courses, including EE-103 Microeconomics and EE-105 Macroeconomics. Course requirements for the B.B.A. degree may meet the requirements for the degree through an elective program by meeting the common requirements in the College of Business Administration and completing two areas of concentration, each consisting of at least three courses (nine semester hours), two of which must be courses offered by the College of Business Administration. A student may select courses from those offered by the Department of Economics to fulfill the areas of concentration requirement.

The two areas of concentration must be approved by the student's advisor.

Graduate Program

Master of Arts

The M.A. degree program provides training in applied economics. It can be completed in three semesters. A student who performs well in the first semester can transfer to the Ph.D. program at that time with no loss of credit.

Specialized M.A. programs from which the student may choose include: environmental economics; urban and regional economics; international economics and finance; economic development; financial and monetary economics; economics of the public sector; health economics; economic planning and budgeting; business and managerial economics; and labor economics and labor relations. A complete description of these programs is available from the Department.

The Department offers a joint M.A.-J.D. program in which it accepts up to nine semester hours in law to apply to the M.A. degree, and the College of Law accepts coursework in economics to apply toward the J.D. degree.

M.A. Course Sequence

First Semester
EE-183 Statistical Methods in Econometrics 3 s.h.
EE-200 Topics in Economics 3 s.h.
EE-201 Microeconomics 3 s.h.
EE-202 Macroeconomics 3 s.h.
EE-203 Issues of the Economy 3 s.h.
EE-204 Methods of Quantitative Economics 3 s.h.
EE-205 Electives 3 s.h.

Third Semester (months option)

All M.A. students are required to take one course in either economic history or history of economic thought. In addition, the student will take three electives and write a thesis for a minimum of 32 semester hours, or take five electives and write two research papers in two 200-level economics courses for a minimum of 34 semester hours.

The program is designed so that it can be completed in two semesters. However, those who find the workload too heavy may want to take an additional semester between second and third semesters, or take a fourth semester.
Doctor of Philosophy

The Ph.D. program is designed to provide students with rigorous training in the areas of microeconomic theory, macroeconomic theory, mathematical economics, and econometrics. In addition, the student selects a major area for intensive study and specialization. The usual time required to complete the Ph.D. program is four years. The Ph.D. program has three components: a coordinated sequence of core courses, a set of major area courses, and a dissertation.

Core Component

The core component is designed to bring students to a high level of technical sophistication. The academic load in the core sequence assumes that the student is employed as a research or teaching assistant. Students not employed may carry additional coursework.

The Ph.D. program has a minimum mathematics requirement of two semesters of calculus. This requirement must be satisfied by the end of the first semester of the program.

The core sequence:

First Semester

EE.180 Mathematics for Economists 3 s.h.
EE.183 Statistical Methods in Economics 3 s.h.
EE.200 Principles in Economics 1 s.h.
EE.204 Microeconomics I 3 s.h.

Second Semester

EE.203 Microeconomics I 3 s.h.
EE.204 Microeconomics II 3 s.h.
EE.211 Mathematical Economics I 3 s.h.

Third Semester

EE.205 Microeconomics II 3 s.h.
EE.221 Econometrics I 3 s.h.
Field course 3 s.h.

Fourth Semester

EE.202 Econometrics II 3 s.h.
Field courses 6 s.h.

For students with sufficient mathematical and statistical background, EE.180 and/or EE.183 are waived.

Students planning to specialize in econometrics should take appropriate courses in mathematical statistics.

Major Area Component

Each student chooses a major area of study in addition to the core courses. A major area consists of a minimum of 24 semester hours of coursework comprising intensive study of a field and additional courses which supplement the major field and provide the student with sufficient breadth to understand the relationship between his or her own specialty and other related fields. The major field must include at least one course (3 s.h.) in economic history or the history of economic thought.

The student must maintain a 3.0 grade-point average or better in the field courses.

Examinations and Dissertation

A written qualifying examination, covering theory, mathematical economics and statistics, is given at the end of the first year of the Ph.D. program. Students who pass the examination may continue in the Ph.D. degree program; those who do not may improve the M.A. degree.

After passing the core courses, the student takes a written comprehensive examination covering microeconomics, macroeconomics, and econometrics. A student passing the examination proceeds to the prospectus stage of the Ph.D. program; a student who does not may complete an M.A. program.

A dissertation prospectus must be prepared within ten months of passing all the written comprehensive examinations. Satisfactory oral defense of the dissertation research completes the Ph.D. program.

Teaching and Research

Teaching and/or directed research are vital to the training of candidates for the Ph.D. degree in economics. The Ph.D. degree requires candidates to engage in teaching/research for at least 8 terms (semesters or summer sessions). The typical amount of service in each term is 20 hours per week.

Courses

Primary for Undergraduates

Note: EE.1 and EE.2 may be taken in any order, or they may be taken simultaneously. EE.3 satisfies the social science core requirement.

EE.990 Cooperative Education Internship 3 s.h.

EE.101 Principles of Economics 4 s.h.

Organization and workings of modern economic systems: markets, prices and competition in the promotion of economic welfare; alternative systemic, international trade; microeconomic and macroeconomic implications of international trade; economic growth and development.

EE.102 Principles of Economics 4 s.h.

International trade, capital and factor flows; employment and prices; monetary/macroeconomic impacts; monetary and fiscal policy; alternative systemic policies; development and international economic systems. Prerequisites: Satisfaction of University rhetoric requirement.

EE.107 Comparative Economic Policies and Systems 3 s.h.

Introduction to comparative analysis and interpretation of national economic policies, problems and policy issues. Not open to students who have taken EE.101 or EE.102; no prerequisites.

Economic Analysis and Policy

EE.108 Price, Employment, and Production Theory 3 s.h.

Role of market and price determination under various economic circumstances. National income analysis, employment, growth, and defense policy. Alternative economic systems. Assumptions and implications of economic models, not open to students who have taken economic courses. Prerequisite: EE.990 or equivalent.

EE.109 Macroeconomics 3 s.h.

Economic theory of consumer behavior, producer behavior, and role of markets in determining economic decisions; demand and supply relationships; inflation and deflation; national income and the price level; analysis of the cost of stabilization policies. Prerequisites: EE.101 and EE.102 or permission of instructor.

EE.110 Labor-Market Economics 3 s.h.

Structure of industrial labor market, labor participation and rates of unemployment. Assumptions and implications of labor market behavior. Labor market institutions in different countries. Prerequisites: EE.101 and EE.102 or permission of instructor.

EE.111 Labor-Market Economics 3 s.h.

Structure of industrial labor market, labor participation and rates of unemployment. Assumptions and implications of labor market behavior. Labor market institutions in different countries. Prerequisites: EE.101 and EE.102 or permission of instructor.

EE.112 Health Economics 3 s.h.

Structure of industrial labor market, labor participation and rates of unemployment. Assumptions and implications of labor market behavior. Labor market institutions in different countries. Prerequisites: EE.101 and EE.102 or permission of instructor.

EE.113 Economic Analysis of Human Resources 3 s.h.

Readings in current applications of economics to human services, analysis and evaluation of an economic rationale for widespread use of social assistance programs, and the relationship between social services and economic systems. Prerequisites: EE.101 and EE.102 or equivalent.

EE.114 Economics of Human Resources 3 s.h.

Readings in current applications of economics to human services, analysis and evaluation of an economic rationale for widespread use of social assistance programs, and the relationship between social services and economic systems. Prerequisites: EE.101 and EE.102 or equivalent.
The College of Dentistry is both administratively and physically an integral part of the University, it stems upon and contributes to the University's diverse resources, and its students are 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 Health Center, whose teaching, research, and service activities have earned international recognition.

**Basic Program in Dentistry**

The basic educational program leading to the degree Doctor of Dental Surgery (D.D.S.) consists of at least three years of preprofessional study and approximately four years of study in the College of Dentistry. The dental curriculum consists of five basic units:

**Basic Sciences**

Gross anatomy; biochemistry; microbiology; histology; general pathology; oral pathology; physiology; pharmacology; microbiology.

**Restorative Dental Sciences**

Gross, microscopic and radiographic dental anatomy; dental materials; endodontics; operative dentistry; fixed partial prosthesis; removable prosthesis.

**Oral Medicine**

Preventive dentistry; oral diagnosis; dental radiology; oral medicine; anesthesiology and pain control; oral surgery; periodontology; in addition, there are selected mini-sequences in the Bioscience Options Program which are correlated with the basic anatomic sciences.

**Community Dentistry**

Ethics; epidemiology; nutrition; preventive dentistry; community health; principles of human behavior; dental economics, dental jurisprudence.

**Pediatric Dentistry**

Facial growth and development; pedodontics and orthodontics.

To achieve a close correlation of the basic sciences with clinical disciplines, the student is introduced to actual dental work during the first year. The second-year program includes additional correlating activities in the basic and clinical sciences, such as clinics in the effective coordination of auxiliary personnel. This interaction is in conjunction with the dental auxiliary utilization program.

Third-year dental students repeat through a series of "darkness" which gives them meaningful exposure to each of eight clinical disciplines.

Fourth-year dental students are involved in the delivery of comprehensive dental care in an environment which closely simulates conditions in private dental practice. Fourth-year students also are exposed to various extramural health programs at state and University Hospitals and the State Department of Health.

There are available preceptorships in which fourth-year dental students assist in selected dental offices throughout Iowa. The preceptorship exposes students to facets of dentistry usually not observable in an academic setting, such as practical business management procedures, appointment book control, the dynamics of presenting treatment plans to private patients and the relationship of the dentist to the community.

**Program Flexibility**

A dental student may satisfy departmental requirements by obtaining the degree of D.D.S. in six years.
Promotions and Graduation

Student promotions and graduation are determined by the Academic and Professional Performance Committee appointed by the Dean from among the broad areas of basic sciences, practical sciences, clinical sciences, and from the other academic areas of the College. The performance committee may recommend to the Dean that a student withdraw from the College or repeat specific courses when the student is deemed generally unprepared to be promoted or to enter the dental profession.

Committee for Appeals

When a student has been asked to withdraw from the College, or desires special consideration on problems concerning promotion or graduation, or if the student may appeal this decision to the Dean, all appeals shall be heard by an ad hoc committee appointed by the Dean. The committee considers such matters as student scholastic achievement, promotion, absence and general fitness to enter the dental profession. The decision reached by the ad hoc appeals committee is final.

State Board of Dentistry Licensure Examination

The states of Kansas, Colorado, Missouri, Oklahoma, Iowa, Wisconsin, Nebraska, and New Mexico have joined in the formation of the Central Regional Dental Testing Service to replace clinical examinations previously given by the states individually. These examinations are administered at several testing sites located in schools of dentistry within the region. Examination areas are determined by the Central Regional Dental Testing Service and are available from its administrative secretary. Successful completion of requirements of the Central Regional Dental Testing Service will be accepted by the member states for a five-year period in lieu of their individual clinical requirements.

Facilities

The Dental Science Building, a major unit in an expanded Health Center, enables the College to accelerate its research activities, and facilitates the development of interdisciplinary communication in Health Center teaching, research, and patient care activities. The Health Center includes the colleges of Medicine, Nursing and Pharmacology, Basic Sciences, Dentistry, University Hospitals and a Health Sciences Library. The Health Sciences Library houses all of the University's special health sciences holdings, including the College of Dentistry's collection of over 10,000 volumes on dentistry and allied scientific specialties, and the more than 260 professional journals the College currently receives.

The Dental Science Building consists of two connected four-story wings located on either side of a mall. The south wing is devoted to clinical teaching, with various departmental clinical facilities, student laboratories, clinical research space, offices and an automated learning center. The north wing houses a variety of teaching, administrative, and research facilities, including teaching laboratories, research laboratories, administration area, an audiovisual production center and the programs in community dentistry.

Student Organizations

All dental students are eligible for membership in the American Student Dental Association. Students who rank in the upper 12 percent of the senior class are eligible for Omicron Kappa Upsilon, national scholastic honorary dental society. Two national dental professional Fraternities, Delta Sigma Delta and Phi Omicron, have chapter houses in Iowa, and both have alumni auxiliaries. There is also a Dental Student Wives Club.

Financial Assistance

Under the Health Professions Scholarship and Loan Programs, eligible dental students may borrow up to $3,500 each year of their undergraduate professional status. Preference is given to students who would otherwise be unable to finance dental profession studies. Loans are issued at low interest rates and are repayable over an extended period of time after the recipient concludes the course of study. There are also provisions for forgiveness of portion of the loan in consideration of the graduate's selection of location of service in an area where there is a shortage of dentists. The Armed Forces Health Professions Scholarship Program is open to dental students from the Army, Navy and Air Force. For information on this program, inquire at the College Dean's office.

A number of short-term loans are available from the American Dental Association, the Iowa Dental Association, the Kellogg Foundation, the Iowa Dental Achievement Fund and other sources to help students in emergency situations. Dental students are also eligible for much of the assistance provided through the University's Office of Student Financial Aid. This includes opportunities for part-time employment.

For further information on financial assistance or the "Scholarships and Loans" section of the Catalog or inquire at the Office of Student Financial Aid.

Admission

Applications are accepted beginning June 1 of the year prior to the year for which application is made. The closing date for applications is December 1 for the class entering the College of Dentistry the following August.

The prospective dental student is encouraged to complete a program leading to a standard bachelor's degree before entering dentistry, or to consider a combined program which enables him or her to earn a baccalaureate degree upon completion of the prerequisite course work. Preference will be given to applicants who have a bachelor's degree or who have completed requirements for the degree in a combined program.
General Basis for Admission

Each applicant must submit a completed application form and official transcripts from all colleges attended to AADASIS (American Association of Dental Schools Application Service). The forms are available from the University Office of Admissions.

The test academic requirement for admission to the College of Dentistry is the completion of no less than 94 semester hours of academic study at an accredited college.

Predental Studies

The predental program of study should include:

Rhetoric
Satisfactory accomplishment in English composition and speech commensurate with the academic requirements for a bachelor’s degree.

Physics
One year (equivalent to eight semester hours), of which one-fourth must be laboratory work.

Chemistry
Two years (equivalent to 16 semester hours), including one year (equivalent to eight semester hours) of organic chemistry, with appropriate laboratory work in all courses, of which one-fourth must be laboratory work.

Biology
One year (equivalent to eight semester hours); this requirement may be satisfied by a one-year course in general biology or botany and anatomy (not anatomy alone), but in all cases one-half of the credit must be for laboratory work.

Electives
The applicant should also have sufficient coursework in the social sciences, philosophy, psychology, history, foreign languages and mathematics to provide a well-rounded educational background.

The dentistry admissions committee may value or require some of the above requirements when the candidate for admission is considered outstanding in other respects. 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 considered outstanding.

Combined Liberal Arts-Dentistry Course

The provision for admittance by the College of Liberal Arts of 30 semester hours of elective credit earned in any other college of the University makes it possible for the student who enters the College of Dentistry to obtain the bachelor’s degree from the College of Liberal Arts upon successful completion of the freshman year in Dentistry. To take advantage of this plan, the student must fulfill all specific requirements for the bachelor’s degree, including the requirements for a major in some department or area of concentration. The successful completion of the last 30 hours in the College of Liberal Arts at The University of Iowa preceding enrollment in the College of Dentistry satisfies the College of Liberal Arts residence requirement.

Grade-Point Requirement

The applicant should have a cumulative grade-point average of at least 2.5 (A=4). In addition to the cumulative grade-point average, the admissions committee gives special consideration to the quality of the applicant’s coursework in the predental sciences.

Interviews
Personal interviews are required of applicants for admission to the College of Dentistry.

Required Dental Admission Test

All applicants must complete the Dental Admission Test sponsored by the Council on Dental Education of the American Dental Association. Tests are given two times annually, and The University of Iowa is a testing center. Applicants must take the test no later than October in order to be admitted the following year. Applicants may obtain test application forms from the University or the American Dental Association. Test applications should be submitted well before the test deadline.

Deposit by Accepted Applicants

An accepted applicant is required to submit a deposit within 15 days after notification of favorable action on his or her application. This deposit is not refundable but is credited toward the first fee payment. An applicant who fails to make the deposit within the time specified forfeits a place in the entering class.

Physical Examination

Applicants accepted for admission are required to submit a satisfactory physical examination report to the University Student Health Service prior to registration.

Additional Admission Considerations

Fulfillsment of the specific requirements listed for admission does not ensure admittance to the College of Dentistry. From the applicants meeting minimum requirements, the admissions committee selects those who appear best qualified for the work and practice of dentistry. The committee considers applicants’ academic achievements, the scores on the required Dental Admission Test, and several other factors.

Since the available places in the freshman class of the College of Dentistry are limited, preference will be given to applicants who are residents of Iowa under the University’s regulations on residence. It is found possible to consider a limited number of applicants who are nonresidents of Iowa, but preference will be given to nonresident applicants from states without dental schools, and to other nonresident applicants of outstanding scholarship and promise. Nonresidents whose grade-point averages are below 3.25 are discouraged from applying.

Graduate and postgraduate study programs leading in the Master of Science degree are offered by the College of Dentistry’s departments of Dental Hygiene, Fixed Prosthodontics, Operative Dentistry and Endodontics, Oral Pathology and Diagnosis, Oral Surgery, Orthodontics, 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 the Doctor of Dental Surgery degree or its equivalent, and departmental approval.

Departments also offer postgraduate programs of study designed as preparation for clinical specialty practice. These programs do not lead to an academic degree.

Eligibility for admission to the professional program requires at least 60 semester hours of college coursework and at least a 3.25 cumulative grade point average (2.4 for a transfer student). In fulfilling the 60-hour requirement, the student must satisfy general education requirements at the College of Liberal Arts and complete the following dental hygiene prerequisites:

Five semester hours (eight for transfer students) of general chemistry—476 Principles of Animal Biology; Four semester hours of inorganic chemistry—601 Chemistry I;
Four semester hours of organic chemistry, including Biochemistry—4.5 General Chemistry II; 4.9 General Chemistry Laboratory.
Four semester hours of microbiology—61:164 Microbiology.
Three semester hours of nutrition—17:194 Nutrition Work with Children.
Four semester hours of psychology—31: Elementary Psychology.
Four semester hours of sociology—54:1 Introduction to Sociology and Principles.
Four semester hours of anatomy—60:1 Elementary Human Anatomy.
Four semester hours of physiology—72:13 Introduction to Human Physiology.

These prerequisites provide the educational basis for the dental hygiene courses of study. Completion of a two-year associate degree program in dental hygiene, therefore, does not provide an appropriate background for transfer into the bachelor's degree program at Iowa.

Students begin the professional program in dental hygiene in the fall only. Students enrolled in the University of Iowa College of Liberal Arts need only submit the dental hygiene application. Transfer students must submit both College of Liberal Arts and dental hygiene applications. After submitting their dental hygiene applications, all applicants are interviewed by the dental hygiene admissions committee.

Graduate Program
Although the need for qualified educators in dental hygiene continues, the graduate faculty within recent years has recognized the need for preparing graduates to contribute toward the advancement of new knowledge in dental hygiene. This has resulted in revision of graduate program goals to place increased emphasis on the acquisition of advanced scientific knowledge in the biological and social sciences and basic knowledge of and experience in conducting research.

The curriculum design provides the student with major concentration in advanced dental hygiene theory. In the biological field, this consists of the pathophysiology of dental plaque including plaque microbiology and biochemistry, and 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 sciences area, students will read literature on the relationships between the individual, the family and community and oral health outcomes, consider how oral health could be improved in simulated community settings, and learn how social science research methodology can be utilized to study problems relevant to the profession of oral hygiene and to oral health.

Study in the educational field involves trends in dental hygiene with emphasis on dental hygiene education, elements of curricular design; and the theory and application of didactic and clinical teaching in dental hygiene.

Although students may begin the program during the fall, spring, or summer session, enrollment at the beginning of the summer session is preferred. Applications, transcripts, and Graduate Record Examination (GRE) scores should be submitted at least six months prior to the semester admittance is desired. Most students should expect to take two academic years to complete degree requirements.

Approximately 12 semester hours are assigned to courses in advanced knowledge in dental hygiene and 10 semester hours to research methodology and to hosts preparation and defense. The remaining 12 hours are to include electives in the biomedical and social sciences.

Elective coursework related to the biomedical sciences includes microbiology, histology, biochemistry, oral pathology, and periodontology.

Electives emphasizing population research and the social-economic and political aspects of health include epidemiology, medical sociology, health care planning, and the sociology of change. Students are encouraged to consider taking some courses in higher education, such as educational measurement, theories of learning, and administration.

After the student completes his/her coursework and thesis is accepted, the candidate must pass a comprehensive examination over the graduate program of study.

Courses required in Dental Hygiene are 88:201 Seminar: Dental hygiene Literature Review; 88:202 Evaluation of Dental Hygiene Research; 88:203 Research: Dental Hygiene; 88:204 Selected Topics in Dental Hygiene Education; 88:205 Social-medical Topics in Oral Health Care; and 88:206 Thesis: Dental Hygiene. Other required courses are 111:212 Statistical Methods in the Biomedical Sciences, or 77:141 Introduction to Statistical Methods; and 111:204 Design and Evaluation of Research Dentistry.

Graduate Admission Requirements
Applicants for admission are subject to the general rules of the Graduate College. Departmental requirements include an acceptable score on the Graduate Record Examination and a 2.5 minimum undergraduate cumulative grade-point average (A=4). The undergraduate education of the applicant should include coursework equivalent to those in the undergraduate dental hygiene major at The University of Iowa.

Candidates for admission must submit official transcripts of all undergraduate academic records, an application for admission, and Graduate Record Examination scores to the Office of Graduate Admissions, Cohn Hall. These materials must be received before the candidate's application can be processed. Application for admission and information on the Graduate Record Examination can be obtained from the Office of Graduate Admissions.

Special Programs
Through an independent study program, students can explore additional career options in dental hygiene or enrich their educational background in a dental hygiene-related field of study. For example, a student interested in clinical research may become involved in a faculty-directed research project. Others considering graduate programs in public health or dental hygiene education may, under the direction of faculty, conduct projects related to these interest areas.

Facilities
University of Iowa dental hygiene majors receive their professional education in the University's new Dental Science Building. This building is part of the University of Iowa Health Center 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 are a limited number of loans specifically for dental hygiene students. These loans are based on assessment of the student's academic record as well as financial need.

Courses

For Undergraduates

58.01 Dental Anatomy 1.5 q.
Detailed study of human dental anatomy, morphology, and function. Includes dental terminologies, anatomy, dentition, and elimination of primary and permanent dentitions.

58.01 Dental Hygiene Theory 4 q.
Introduction to dental hygiene theory, clinical skills, head and neck, and oral care, and dental disease. Attention and clinical critical thinking is related to prevention, and promotion, and dental hygiene procedures.

58.02 Dental Hygiene Core II 3 q.
Emphasis on application of dental hygiene theory in the performance of preventive and clinical dental hygiene and oral disease control procedures.

58.05 Global Dental Hygiene 7 q.
Practice of advanced dental hygiene procedures with emphasis on providing comprehensive preventive and clinical services.

58.06 Seminar: Dental Hygiene Concepts and Practice 4 q.
Review of current research and advances in preventive procedures; ethical, legal, and social responsibilities of health care providers; current and emerging roles in dental hygiene practice.

58.07 Practicum: Community Dental Health 6 q.
Knowledge of community dental care, educational research techniques are applied in field experiences to design, implement, and evaluate health care and educational programs.

58.08 Seminar: Community Dental Health 4 q.
Study of factors influencing health care delivery and utilization. Dental epidemiology, need and demand for dental care, dental care system, and current research and future directions are emphasized.

58.11 Independent Study 4 q.
Designed for students who plan to pursue additional study in an area of special interest in dental hygiene education, research or public health.

For Graduates

58.01 Bachelor: Dental Hygiene 4 x credits
Principles of oral health, nutrition, and diet planning.

58.02 Bachelor: Dental Hygiene Research 4 q.
Evaluation of clinical research in dental hygiene.

58.03 Bachelor: Dental Hygiene Research 4 q.
Evaluation of research topics, technique, and application of research topics.

58.25 Dental Topics in Dental Hygiene Education 3 q.
Theory and research applied to specific areas of dental hygiene education in clinical, didactic, or field settings. Content arranged on theoretical and methodological issues.

58.25 Socio-Medical Topics in Oral Health Care 4 q.
Evaluation of current research conducted on cultural, sociological, and psychological factors influencing oral hygiene and oral health care.

58.998 Thesis: Dental Hygiene
Completion of thesis proposal and defense.

Endodontics

Gladys Beveridge Hesham Mohamed Kowshed
Faculty members
Arne L. Sjogren, Mohamed Kowshed
Assistant professor
Leaves K. Kuramagi
Degree/Diploma: M.S.

Predoctoral Program

Coursework and clinical experiences in endodontics are of vital importance in the overall education of a dental student. Preadontal endodontics is taught during the sophomore year and includes both didactic and laboratory courses.

In clinical endodontics, the student studies both norma! and pathologic conditions of the dental pulp, emphasizing the areas of prevention and diagnosis of pulpal disease. Students treat endodontic patients under direct supervision of the Department's faculty and staff.

Graduate Program in Endodontics

The graduate program offered by the Department of Endodontics is designed to prepare qualified dentists for specialties in comprehensive dentistry, endodontics. It also prepares the candidate for a career in dental education and research.

The Department offers two types of graduate programs.

1. The Master of Science degree program requires a minimum of 40 graduate credit hours, including an original research project and those. The student follows a plan of study which may involve a total of 60 semester hours.

2. The certificate program requires no formal thesis. The candidate is expected to write a scientific paper of publishable quality, based on original research. The certificate program involves course study for up to 60 semester hours of credit. An individual plan of study is prepared for each student.

Both programs are for a minimum of two calendar years, and only full-time students are admitted. Completion of the program requires satisfactory performance in a comprehensive written and oral examination which is of a functional character and does not duplicate semester examination.

These programs satisfy the training requirements for eligibility for the American Board of Endodontics.

The specific goals of these programs are to allow the dentist to develop his skills and acquire a broad knowledge of the specialty of endodontics for teaching and practice purposes; to gain sufficient knowledge and experience in the educational process so that he or she may function confidently as a dental educator: to recognize the value of the pursuit of academic research; and to develop the ability to plan, conduct, and report the results of research investigations.

An applicant for the graduate programs in Endodontics must be a graduate of an accredited college of dentistry and must comply with the requirements for admission to the Graduate College of The University of Iowa.

The graduate programs in Endodontics normally begin July 1 of every year. However, it is also possible to enroll in the program at the beginning of either the spring semester or summer session. Applications should be made no later than two semesters in advance of anticipated starting date.

Students who have met the requirements for admission to the Graduate College must also 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 falls 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 shall not be involved in private practice enterprises outside the college. A student who does so will be asked to withdraw himself or herself exclusively to the program or the practice.
D.D.S. Program

33.146 Endodontics
1 cr.
Practical application of orthodontics principles designed to give understanding of basic principles, concepts, and technical procedures necessary to treatment of pulpate and root canal anatomy in human teeth.

33.150 Clinical Endodontic Practice
4 cr.
Clinical endodontic practice: clinical problems evaluated; description of treatment in each clinical case followed by student's practical application on an actual patient case. Special topics: 33.151-154, Fall year.

33.170 Selected Topics in Endodontics
1 cr.

Primarily for Graduates

33.226 Endodontic Literature Review I
1 cr.
Reading of the past and present of endodontic literature.

33.227 Endodontic Literature Review II
1 cr.
Introduction to modern methods of endodontics and discussion of dental materials used in endodontics.

33.227 Endodontic Literature Review III
1 cr.
Reading and discussion of recent endodontic research.

33.228 Endodontic Literature Review IV
1 cr.
Research papers, evaluations and discussions of methods of endodontic literature, and that use in endodontics.

33.230 Research in Endodontics
1 cr.
Topics selected: protocol preparation and starting investigation; completed research investigation and gathering of data, and writing of thesis and defense before thesis committe.

33.231 Thesis Preparation in Endodontics
2 cr.

33.240 Endodontic Surgery Conference
2 cr.
Evaluation of endodontic cases that require surgical treatment, discussion of different treatment modalities, and the maintenance of proficiency in surgical endodontics. Students present their cases, and the results of the case are reviewed in the seminar. Emphasis is on the evaluation of surgical approach in endodontic treatment.

33.241 Advanced Clinical Endodontics
1 cr.
Clinical treatment of patients, progressing from simple to more advanced, facility in diagnosis and treatment; student's presentation of their cases, and the results of the case are reviewed in the seminar.

33.250 Seminar in Endodontics I
2 cr.
Review of basic principles underlying surgical treatment of the oral cavity; basic philosophy and concept of endodontics: review of basic endodontic techniques.

33.251 Seminar in Endodontics II
2 cr.
Discussion of endodontic diagnosis in relation to selected clinical cases of varying difficulties; diagnosis and prognostic principles leading to treatment planning and alternative treatment procedures of highly difficult cases.

33.252 Seminar in Endodontics III
2 cr.
Clinical endodontic procedures as they relate to endodontic cases; evaluation of success and failure of endodontic cases in relation to treatment procedures followed; current endodontic concepts, techniques, and advancements.

33.253 Seminar in Endodontics IV
2 cr.
All areas of dental treatment related to endodontics; complex endodontic cases and difficult patient conditions; relationship of endodontics to other dental specialties, by guest lectures.

43.336 Practice Teaching in Endodontics
1 cr.
For students interested in teaching in dental specialty in endodontics, in a course, practice teaching in undergraduate clinics.

Family Dentistry

Champion lect. Dental L. Hall
Faculty advisor: professor L. Hall. Faculty assistant professors: D. Bonner, L. Cardinal, Howard W. Deming, and Steven E. Johnson. A lecture course in the specialty.

Family Dentistry is responsible for the oral dental student's final synthesis of academic experiences. The major goal is the integration of previously-lengthened clinical skills into a well-organized and systematic approach to the comprehensive treatment of dental patients. The course encompasses approximately three-fourths of the senior year.

Students spend four and a half days a week in a clinical setting, where they gain experience in overall patient management and care. Their didactic coursework builds on the previous year's education. All areas of clinical and didactic instruction, patient awareness, and sensitivity to patients' needs are stressed.

The Department's two-practice management courses—one lecture, the other clinical—prepare the student to make practice location selections as well as manage the business aspects of a dental office.

Courses

114.190 Practice Management Lecture
1 cr.
Management of personnel, principles of management, personal management, and economics of dental practice, personnel management, and economic principles of dental practice, principles of management, personnel management, and economics of dental practice, principles of management, personnel management, and economics of dental practice.

114.191 Practice Management Seminar
1 cr.
Application of the principles of management of dental office in a clinical environment of multiple hospitals and dental facilities, and understanding the importance of the business organization in delivering high quality care to patients.

114.192 Family Dentistry I
1 cr.
Synthesis, analysis and evaluation of prior academic knowledge and experience for an integrated and comprehensive system of dental health care management.

114.193 Family Dentistry II
1 cr.
Clinical applications of previous cognitive, psychomotor, and affective learning experiences toward development of an integrated and comprehensive system of dental health care management.

114.194 Group Practice Seminar
1 cr.
Dynamic principles of a small dental group practice, with emphasis on management of the practice. Students are assigned to the group; methods are selected and developed to encourage the effectiveness and efficiency of dental patient treatment by members of the group.

114.195 Group Practice Seminar
1 cr.
Guest lecturers from various dental specialties provide current information and training in areas that impact and affect the practice of dental profession. Information about selection of group practice is presented.

Fixed Prosthodontics

Department head: Keith C. Thayer

Predoctoral Program

The Department participates in the D.D.S. program for dental students at all curricular levels. Predoctoral courses at the first and second level prepare the student with the background in materials and techniques used in fixed prosthodontics. The Department also participates in the fourth level, in a concentrated clinic program of patient treatment in the specialty area. The Department provides a consultation service to students in the fourth curricular level.

Graduate Program

The primary purpose of the Master of Science program in fixed prosthodontics is to train and prepare dentists for careers in fixed prosthodontia education and research. It is adaptable for individuals wishing to further prepare themselves for private practice in fixed prosthodontics. The program satisfies the formal training requirements for eligibility for the American Board of Prosthodontics examination.

Degree Requirements

A research project and thesis are required for the master's degree in fixed prosthodontics. The major emphasis of coursework is in fixed prosthodontic theory and treatment along with seminar courses in other
specialties of dentistry. A course in research methodology as well as a course in biostatistics or elementary statistical infer-
ences in medicine is required. Coursework in the general area of basic science is also required. Civil and/or written exam- 
are given during the requisite program and degree exam period each year.
Any student who is unable to maintain the minimum 2.5 grade-point average during the first year of the program, or those
individuals who elect to terminate their program after one year will be considered for
leaving of certificates of attendance. Each
student will be required to submit a
manuscript suitable for publication in a
nationally recognized periodical jour-

al, based upon the student's research
and/or thesis topic. He or she will be required to
prepare one additional manuscript for
publication on another topic.
Certificate Program

A certificate program offered by the
Department provides more clinical experi-
ence and has no requirement for a research
project and 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 include:
the prerequisite requirements for admission to the Graduate College of the University. In addition, the
student must hold a D.D.S. or D.M.D. degree
or its foreign equivalent. No advanced OBG is
required.

Courses

81:141 Prosthodontics Technique Laboratory 3 s.h.
81:146 Distraction 4 s.h.
81:154 Distraction 5 1 s.h.
81:189 Prosthodontics 4 s.h.
Primary for Graduates

81:215 Seminar: Fixed Prosthodontics 1 s.h.
81:216 Seminar: Occlusion 1 s.h.
81:217 Seminar: Dental Materials 1 s.h.
81:218 Seminar: Fixed Prosthodontics Topics 1 s.h.
81:230 Research: Fixed Prosthodontics 1 s.h.
81:231 Thesis Preparation: Fixed Prosthodontics 2 s.h.
81:245 Advanced Clinical Fixed Prosthodontics 2 s.h.
81:247 Technique Laboratory: Fixed Prosthodontics 2 s.h.
81:248 Prosthodontic Techniques Lecture 2 s.h.
81:249 Prosthodontic Techniques Laboratory 2 s.h.
81:250 Practice Teaching: Fixed Prosthodontics 1 s.h.
81:251 Practice Teaching: Fixed Prosthodontics 1 s.h.

Operative Dentistry

Department head: Wallace W. Johnson
Faculty: profressor Hal Chiu, R. Gerald Derwent
associate professor James Fuller
assistant professor Dan Brown, Salam Khale, Gaoqs
Tourent
Instructors: Yvonne-Charlaine, John Richardson
Degree offered: M.B.

Predoctoral Program

Coursework and clinical experiences in
operative dentistry are fundamental to the
overall education of a dental student. The
operative curriculum is designed so that the
didactic material presented relates closely to
the laboratory and clinical experiences. The

total program of instruction will provide the
students with the necessary knowledge and
experience 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 some opportunity in the graduate
class to pursue courses that may be of particular interest.

An applicant for this program must be a graduate of a recognized school of dentistry
and must comply with the requirements for admission to the Graduate College of the
University. An interview with the applicant
may be requested.

Students may take the program for either a Master of Science degree or for a certificate in
operative dentistry.
The following requirements must be met for the
M.D. of Science degree:
Satisfactory completion of 48 semester
hours of graduate level courses as specified
in the plan of study for a Master of Science
Degree in Operative Dentistry;
Preparation of an acceptable thesis based
on original research. The student should plan
to furnish his or her own financial
support for the research and thesis; and
Format defense of the thesis and
examination of the candidate by an
examinining committee.

Courses

Operative Dentistry

D.D.S. Program

81:201 Operative Dentistry Lecture 7 s.h.
81:202 Operative Dentistry Laboratory 7 s.h.
81:203 Operative Dentistry 2 s.h.
81:204 Operative Dentistry 2 s.h.
81:205 Operative Dentistry 2 s.h.
81:206 Operative Dentistry 2 s.h.
81:207 Operative Dentistry 3 s.h.
81:208 Operative Dentistry 3 s.h.
81:209 Operative Dentistry 3 s.h.
81:210 Operative Dentistry 3 s.h.
DENTISTRY/Oral Pathology and Diagnosis

UD0168 Operative Dentistry I 2 s.h.
- Lecture and seminars concerning dental materials, anatomy, and dentin disposition.
- Preparation of cavity preparations, restorations, and placement of restorative materials.
- Use of instruments in procedural ornamentation.

UD0130 Operative Dentistry Laboratory and Clinic I 2 s.h.
- Study and application of procedures involved in preparation of human teeth.
- Clinical experience in the clinical treatment of restorative dentistry.
- Use of various dental materials in fabrication of restorations.

UD0146 Operative Dentistry II Lectures 2 s.h.
- Lecture and seminars concerning the principles and design of cavity preparations, the restoration of teeth, patient management, pain control and other aspects of clinical practice.

UD0141 Operative Dentistry II Clinic 2 s.h.
- Clinical training in operative dentistry on patients in operative clinic.

UD0136 Operative Dentistry III 4 s.h.
- Lecture, seminars, clinical demonstrations conducted with supervised student treatment for each student in dental laboratory.
- Students are evaluated at the end of the course in the clinical application of restorative procedures.

UD0203 Operational Dentistry Seminar I 1 s.h.
- Literature review and discussion of past and present status of operative dentistry.

UD0205 Operational Dentistry Seminar II 1 s.h.
- Readings and discussion of the research relating to the bacteriological aspects of cavity preparations and their restoration.

UD0207 Operational Dentistry Seminar III 1 s.h.
- Readings and discussion of research relating to problems associated with restorative procedures and their use in operative dentistry.

UD0220 Active Research in Dental Teaching arr.

Research Program

UD0206 Operative Dentistry Research I 5 s.h.
- Topic selection, completion of a literature review for research project, begin research project.

UD0208 Operative Dentistry Research II 3 s.h.
- Protocol completion, begin research investigation.

UD0210 Operative Dentistry Research III 3 s.h.
- Complete research investigation, gather and organize data.

UD0212 Operative Dentistry Research IV 3 s.h.
- Data analysis and writing thesis.

UD0214 Thesis Preparation in Operative Dentistry partial
- Complete thesis, defense before the committee, and comprehensive examination.

Clinical Studies

UD0246 Operative Dentistry Advanced Clinic I arr.
- Independent work of past and present research projects. Specialist, restorative assignments on a workday.

UD0241 Operative Dentistry Advanced Clinic II arr.
- Treatment of patient cases in the Operative Clinic, seminars and discussions of case problems concerning restorative procedures.

UD0242 Operative Dentistry Advanced Clinic III arr.
- Treatment of patient cases in the Operative Clinic seminars and discussions of case problems concerning restorative procedures.

UD0244 Operative Dentistry Advanced Clinic IV arr.
- Treatment of patient cases in the Operative Clinic seminars and discussions of case problems concerning restorative procedures.

UD0246 Operative Dentistry Advanced Clinic V arr.
- Treatment of patient cases in the Operative Clinic seminars and discussions of case problems concerning restorative procedures.

UD0248 Clinical Dentalorative arr.

Oral Pathology and Diagnosis

Hendel, Gilbert L. Billy

Hendel, Philip S. Nathan, Clayton L. Smith, Christopher A. Squire
Assistant Professor: Francis H. Raby
Instructor: Julie A. Howes

Predoctoral Program

The primary objective of the Department is to provide instruction to dental students and other health-profession students in the etiology and natural history of diseases occurring in and about the oral cavity. Instruction includes the clinical, laboratory, radiographic, and microscopic features of these diseases and their management. Instruction is provided in the physical evaluation of patients to identify systemic diseases and their influence on dental treatment. Systemic diseases.

Graduate Program

Advanced instruction is available for graduate level students in health sciences and related fields in preparation for specialty training or careers in teaching and research. Candidates for the Master of Science degree are expected to develop substantial abilities for research into mechanisms of dental disease, and should anticipate that considerable effort will be devoted to completion of an assigned research project and the thesis which will be based on it.

The tools for research will be determined for each student after consultation with the major advisor. Minimum requirements for completion of this program are 45 semester hours of graduate credit and a thesis. The required courses are:

8006 Problems 2 s.h.
81159 Pathogen Bacteriology 4 s.h.
11130 Statistical Methods in Biomedical Science 3 s.h.
89201 General Pathology for Medical Students 5 s.h.
9202 Systematic Pathology for Medical Students 7 s.h.
99211 Clerkship in Pathology 2 s.h.
37161 Seminar: Cell Structure and Function 2 s.h.
89230 Research in Oral Pathology and Diagnosis 2 s.h.
86250 Proctologic Processes 3 s.h.
88256 Advanced Oral Pathology 3 s.h.
82215 Dental Sciences Research Methodology 2 s.h.
88199 Basic Otolaryngologic Science 4 s.h.

Since most graduates of advanced programs in oral pathology follow academic careers, students will participate in predoctoral teaching in the Department as part of their education.

Special Program

The certificate program in Oral Pathology combines academic studies with extensive laboratory practice of oral pathology under staff supervision, and requires a minimum of twenty months of full-time work for completion. Qualification for the curricula includes completion of all required courses with a passing grade. Demonstration of competence in the practice of oral pathology and a satisfactory grade in a final comprehensive examination before an examination committee composed of members of the graduate faculty in the Department of Oral Pathology and Diagnosis.

Although additional courses may be elected if circumstances permit or required, required courses in this program are:

86160 Topics in Oral Pathology 1 s.h.
86200 Oral Pathology and Diagnosis Literature Review 2 s.h.
86265 Oral Pathology and Diagnosis Seminar I 1 s.h.
88199 Basic Otolaryngologic Science 4 s.h.
Residency Program

The aim of the residency program in oral surgery is to provide preparation for residency practice. The program is designed to combine clinical and didactic training on an individual basis. Each effort is made to adapt the program to the interests, abilities, and development of the individual student; however, it is essential to meet certain functional requirements.

The recommendations of the Committee on Dental Education of the American Dental Association and the Committee on Graduate Training of the American Society of Oral Surgeons and the American Board of Oral Surgery have been carefully considered in planning the structure and scope of training.

Requirements for the Master of Science degree may be completed during residency. The M.S. program comprises a three-year course of integrated didactic and clinical study, and may include a research project and the preparation of a thesis.

Residency

The residency period covers three years of hospital training, providing an orientation to hospital procedures, instruction in oral and clinical methodologies, acquisition of the principles of surgery and familiarization with the various aspects of health services. Competence in oral surgical techniques requires knowledge and experience in the basic medical sciences necessary for dental specialty. Therefore, in addition to hospital and clinical training, the resident takes advanced coursework in such subjects as applied pharmacology, surgical anatomy, pathology, physiology and microbiology, and reviews such closely-related disciplines as neuro-ophthalmology, anesthesiology, physical diagnosis and laboratory procedures.

The assumption of increased responsibility and the opportunity for critical and operating room experience are important aspects of residency training.

Resident gains clinical training in anesthesia as well as an assigned rotation in the Department of Anesthesiology. Previous advanced training in physical diagnosis, pathology, pharmacology and pathology now assume greater clinical significance. 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 surgical cases during rotations in the University and VA hospitals. Each third-year resident is assigned a rotational basis as a clinical and didactic coordinator and assumes responsibility to qualify for examination by the American Board of Oral Surgeons.

Admission

The deadline for graduate application in oral surgery is November 1 for admission July 1 of the next year.

Admission is limited to July 1 of each year for a full three-year program.

GPA: 3.0 or better.

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 one-third of his or her graduating class.

Information required includes application for graduate oral surgery, applicant representative form from applicant’s representative, transcripts, and letters of recommendation from the dean of the dental college from which the applicant graduated, and from two professional references.

Applicants are encouraged to contact the residency program director for additional information.

Applicants may be appointed any time after the application has been completed and the staff has had an opportunity to review the application. All appointments should be extended on or before January 1 prior to the July 1 effective date.

The graduate administration office will send an admission form to the applicant to be completed for the Graduate College by approximately March 1.

Facilities

The University Health Center has outstanding basic and clinical science departments which stimulate and support scholarly research and sustain clinical practice. The facilities of the University Hospital, the Iowa City Veterans Administration Hospital and the college of dentistry and Medicine provide an appropriate environment for residency training in oral surgery.

Hospital Organizations

The organizational structure at University Hospital includes a clinical Department of Dentistry with Divisions of Oral Surgery, General Dentistry and Prosthodontics. Under these institutions, the above-mentioned Oral Surgery residency program and an one-year general practice residency are conducted.

Predoctoral Courses

D710 Anesthesia, Anatomia 1 e.h.
Principles and techniques in use of local anesthesia; practice application of local anesthetic techniques.

D715 Anesthesiology and Pathology I 1 e.h.
Principles and techniques of complete medical history; head and neck examination, circulatory and cardiopulmonary examination, instrumentation and psychological aspects of pain; pharmacological basis of local anesthesia and intravenous use in the field of local anesthesia.

D716 Basic Oral Surgery 2 e.h.
Principles of oral surgery; indications and contraindications for extractions; evaluation of extent of patient's medical-social history, techniques of extraction under local anesthesia.

D717 Anesthesia and Pain Control I 1 e.h.
Theory and application of intravenous sedation; psychophysical emergency and the sedated patient; hypnotic and/or analgesic sedation; evaluation of patient’s respiratory state; pharmacological aspects of intravenous sedation.

D718 Advanced Oral Surgery 1 e.h.
History, examination, diagnosis and treatment of injuries and traumatic injuries of the oral cavity.

D719 Clinical Oral Surgery I 4 e.h.
Clinical experiences in oral surgery clinics.

D720 Hospital Procedures 1 e.h.
Orientation or residents to the hospital environment in the Division of General Surgery, hospital staff, treatment of dental patients in hospital setting.

Graduate Courses

D721 Hospital Procedures 1 e.h.
Hospital and surgical regulations, patient and department orientation, general information relative to hospital admissions.

D722 Clinical Surgery I 4 e.h.
Intrinsic head and neck anatomy, histology, embryology, neuroanatomy, etc. space anatomy by medical and dental chart.

D723 Oral Anatomy 1 e.h.
State of head and neck structures in major and
Predoctoral Program

The purpose of the predoctoral program in orthodontics is to enable the general practitioner of dentistry to recognize, diagnose and treat with competence simple malocclusions of the teeth.

Lecture courses guide the student in the learning of basic concepts of dental and facial growth, as well as treatment-oriented subject matter. In a laboratory course, diagnostic records are taken and evaluated, and treatment appliances are fabricated. A volunteer program of clinical treatment of selected patients is supervised by the Department.

Opportunities exist for research and independent study in the Department.

Graduate Program

The purpose of the graduate program in Orthodontics is to educate specialists capable of diagnosing and treating any malocclusion of the teeth requiring comprehensive care. The specialist should be familiar with and able to critically analyze biologic, biomechanic, diagnostic and treatment concepts in orthodontics.

Satisfactory completion of a 23-month period of intensive study, including lecture courses, seminars, clinical practice and a research paper, qualifies a student for the Certificate of Orthodontics. If a student satisfactorily completes a thesis based on an original research project, he or she will qualify for an M.S. degree in addition to the Certificate of Orthodontics.

Opportunities are available for research and independent study in the Department. Admission—requires the D.D.S. degree, or its equivalent, and satisfaction of Graduate College requirements.

Special facilities for research in biomechanics and craniofacial growth are available. Interaction with other departments provides learning and research opportunities in surgical orthodontics, cleft lip and palate treatment, speech pathology, animal experimentation and human growth.

Admission

The application deadline is October 1, for the class starting July 1. Acceptance will be required to come to the University for interviews with the faculty of the Department.
Pedodontics

Department Head: Stephen S. Y. Wee
Assistant Professors: Larry J. Pomerance, Jerry D. Walker
Assistant Professor Brian H. K. Clark
Adjunct Assistant Professor James B. Walker
Instructor Mary H. Major
Degree offered: M.D. (certified also offered).

The Department of Pedodontics provides Instruction for dental and graduate students in the prevention and treatment of dental diseases in children. Instruction consists of didactic, laboratory, and clinical experiences. It gives special consideration to reviewing current literature and managing dental problems of handicapped children, and it emphasizes efficient treatment through proper utilization of dental auxiliary personnel and record management.

The Graduate Program

Graduate study in Pedodontics leads to either certification or a master's degree. The program gives special emphasis to preparation for certification by the American Board of Pedodontics. It is fully accredited by the Council on Dental Education.

Students are trained in all phases of pedodontics, to permit them career choices in practice, education, or research.

Approximately 40 percent of the program is devoted to advanced clinical activity, 40 percent to didactic classroom and practice teaching, and 30 percent to original research.

The program comprises a core of oral and basic science courses, supplemented by elective selections determined by the student's individual interest.

Development of a major subject area is recommended.

Dual degree programs have been arranged with several other departments. Close association with the Department of Pediatric Dentistry in the College of Medicine and with the University Hospital School of Nursing and University Hospitals, permits emphasis on oral rehabilitation under general anesthesia, instruction in physical diagnosis, and management of exceptional children.

Research Opportunities

Research carried out by graduate students in Pedodontics has been selected on a number of occasions for national awards and journal publications. Clinical and laboratory research projects are in progress, with financial support from several agencies and other sources. Significant contributions have been made in the areas of fluoride action and child behavior management.

Quality of Faculty

Faculty members hold numerous national and state offices, committee memberships, consultancies, and honors in professional organizations. They serve as reviewers for several professional journals and federal granting agencies. They also participate regularly in continuing education programs for dentists and other health care personnel. Several members are Diplomates of the American Board of Pedodontics.

Financial Aid

Stipend support is available to qualified students.

Admission

Apply to the Graduate College.

Courses

(148 Pedodontics Diagnosis and Treatment
2 credits
Concepts of growth and development, dental growth and development, prevention, restorative techniques for pedodontic patient.

(150 Clinical Pedodontics
4 credits
Comprehensive clinical management of pediatric patient.

Primarily for Graduates

(219 Introduction to Advanced Clinical Dentistry
2 credits
For first-year graduate students; emphasis on growth and development, child management, etc.

(229 Advanced Didactic Orthodontic Techniques
3 credits
Offered as 68.319. 8.105. 2.020

(229 Pedodontic Literature Review I
1.5 credits
Discussions of growth and development, behavior management, preventive restorative techniques, and disease of pedodontic patient.

(229 Pedodontic Literature Review II
1.5 credits
Discussions of jaw and oral orthodontics, surgery, periodontal health and nutrition guidance, endodontics, pedodontics, and minor oral surgery as related to pediatric patients.
Predoctoral Program

The Department of Periodontics is concerned with the diagnosis, prevention and treatment of periodontal disease. Its predoctoral program combines didactic, laboratory, and clinical experience, with an emphasis on the biological concepts of periodontology to the comprehensive clinical management of patients who have periodontal disease.

Master of Science Program

The Master of Science program is designed primarily to provide training in teaching, research and specialization in periodontics. In compliance with the regulations of the Graduate College and to meet the requirements of the American Board of Periodontology for eligibility for certification, the program requires:

Satisfactory completion of a minimum of 60 semester hours of the required and elective courses;

Preparation and defense of an acceptable thesis based on original research requiring 11 semester hours of research and three semester hours of thesis preparation; and

Satisfactory completion of a comprehensive written and oral examination.

Completion of the program requires 27-38 calendar months of full-time study.

Interdisciplinary Ph.D. - Periodontal Research Program

The purpose of the program is to train dentists for an academic career in research and teaching in the field of periodontal disease. The main thrust of the program is in the accomplishment of periodontally related research, with the necessary didactic and practical scientific training in the basic sciences. The program will be tailored to the prior background and interests of each trainee with direct research supervision supplied by a member of the faculty, whose own research activities and interests lie in the trainee's area of research.

Applicants to the program will be selected from individuals with a D.D.S. (or equivalent) degree, with strong preference given to applicants who also hold an M.S. degree. Applicants will be enrolled in an interdisciplinary program leading to a Ph.D. degree in either periodontics (anatomy), periodontics (biochemistry), periodontics (microbiology), periodontics (pharmacology) or periodontics (physiology). The certification program in periodontics may also be combined with this program.

Certification Program

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 will require 24 calendar months of full-time study, and will require:

Satisfactory completion of a minimum of 60 semester hours of the required and elective courses;

Satisfactory completion of a comprehensive written and oral examination; and

An acceptable literature review paper.

Opportunities are provided for experience in clinical and basic research.

Facilities

The Department has 20 modern well-equipped operatories and a consultation area for periodontics and 43 equipped operatories for the University and V.A. hospitals. The research facilities include a deparmental research laboratory, and separate laboratories in histology, histocompatibility, microbiology, and electron microscopy with EM and scanning capabilities, and growth and development. These facilities are available in the University and V.A. hospitals and the basic science departments.

Financial Aid

The applicant must be financially prepared to undertake uninterrupted studies. Assistance is offered dependent upon available resources. The interdisciplinary Ph.D. - Periodontal Research Program is supported by a full research stipend.

Admission

Admission requires the D.D.S. degree or its equivalent, and satisfaction of Graduate
College requirements. Interim courses are encouraged but not mandatory.

Predoctoral Courses

02:216 Introduction to Dentistry 3 s.h.
02:216 Periodontics 

Preventive and Community Dentistry

Preventive 

Community Dentistry

Divisions head. W. Philip Pratz

Faculty: professor M. Philip Pratz, associate professor James D. Beck, Howard H. Field, Nelson D. Logan, assistant professor Robert E. Stern, Paul F. Ketter, Dean W. Willett

Instructor: David Hanakin

Degree offered: M.S. in Community Dentistry

Programs in preventive and community dentistry are designed to provide dental students with experiences to increase their awareness of unmet health needs and to encourage students to develop and implement approaches to alleviate these needs. Extramural programs provide students with opportunities to interact with health care teams and members of communities in Iowa. The department conducts five full-time extramural programs throughout the state.

Using the community as the classroom, students are able to observe and participate in a variety of activities intended to make the student aware of the societal obligations he or she must assume in order to practice effectively.

Included in the Department’s resources are two mobile dental vans, one with five operators and a second smaller unit designed for prevention programs. The vans are operated throughout Iowa, and give senior dental and hygiene students and graduate students an experience which closely simulates community dental practice.

Master of Science Program

The Master of Science degree program is designed to prepare students in community dentistry with emphasis on research, teaching, or administration. The objective of the program is to help students achieve a high degree of professional competency in their respective areas of special interest. Successful graduates of this program will have met educational requirements necessary to establish their eligibility for the American Board of Dental Public Health.

The program requires a minimum of 42 semester hours of coursework. The full-time program requires a minimum of 18 months of coursework and practice to meet the M.S. and residency requirements.
Graduate Courses
119:200 Literature Review in Prosthodontics and Community Dentistry 2 s.h.
Review of current and assigned subjects with guidance of individual faculty members and through scheduled seminars at which reports are presented. Upper level including a critical review of literature and annotated bibliographies required at least one evaluation.

119:201 Practicum Teaching Prosthodontics and Community Dentistry 2 s.h.
Practical experience gained by preparing course outlines and lessons, preparing and presenting lessons, helping students and evaluating their experiences for undergraduate students.

119:202 Research Seminar in Community Dentistry 2 s.h.

119:203 Independent Study Prosthodontics and Community Dentistry
Directed individual study of special interest. Consent of instructor required and approved by faculty. Satisfactory completion of course arranged by individual study plan.

119:204 Epidemiology of Dental Disease 2 s.h.

119:205 Problems in Prosthodontics and Community Dentistry 2 s.h.
Problem presentation in which direction has been reviewed materials in the literature and examinations conducted, the student and performance arranged with consultants on an individual basis. An evaluation of the material presented may be submitted.

119:206 Field Experience in Community Dentistry 2 s.h.
Field experience in health professional programs. The experience is designed to provide an understanding of the role of the dentist in community health professions. Students will be assigned to programs in cooperating with and related: health agencies serving in need of services.

119:207 Thesis: Prosthodontics and Community Dentistry 2 s.h.
The thesis and research in area of community or prosthodontics dentistry.

119:222 Statistical Methods in the Biomedical Sciences 2 s.h.
Principles, methods and research particularly appropriate to biomedical research topics include descriptive methods, elementary probability, hypothesis testing, and clinical studies, with emphasis on regression and correlation and analysis of variance.

119:261 Design & Evaluation of Research 2 s.h.

Removable Prosthodontics

Removable prosthodontics is the specialty of dentistry involving complete dentures and removable partial dentures. The predoctoral program provides the student with the basic principles, practices and concepts of removable prosthodontics required for the practical exercises in dentistry, laboratory projects and treatment of patients with removable prosthodontic needs.

The Master of Science degree program develops the student's knowledge in education and research. It also satisfies the basic training requirements for eligibility for the American Board of Prosthodontics examination.

The requirements are flexible, permitting the development of a plan of study which will fill the individual needs of each student. It is possible, with a student receiving more than two courses per semester, to complete the program in two years. The student's adviser will serve as chairman of the examination committee. It is expected that the majority of the student's progress will be 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 B.D.S. or D.M.D. degree or its equivalent. No advanced GRE is required.

Courses
04:120 Prosthodontic Materials Laboratory 1 s.h.
Theory and manipulation of dental materials with basic applications. Same as 04:125.
04:140 Removable Prosthodontic Techniques Lecture 1 s.h.
Technical procedures in construction of complete and removable partial dentures.
04:141 Removable Prosthodontic Techniques Laboratory 1 s.h.
Laboratory exercises in construction of complete and removable partial dentures.
04:150 Removable Prosthodontics 4 s.h.
Sealant and core materials, mouth examinations, diagnosis, treatment planning, and restoration of composites and removable partial dentures.
04:206 Complete Dentures Seminars 1 s.h.
Review of current research in prosthetics, principles and concepts of complete denture construction.
04:207 Complete Dentures Seminars II 1 s.h.
Review of current research in prosthetics, principles and concepts of complete denture construction.
04:208 Removable Partial Dentures Seminar 1 s.h.
Review of current research in prosthetics, principles and concepts of removable partial denture construction.
04:209 Removable Partial Dentures Seminar II 1 s.h.
Review of current research in prosthetics, principles and concepts of removable partial denture construction.
04:209 Research, Removable Prosthodontics Seminar 2 s.h.
Research review, student preparation and data collection for selected research project.
04:231 Thesis Preparation: Removable Prosthodontics Seminar 3 s.h.
Preparation and defense of thesis for research project.
04:303 Advanced Clinical Removable Prosthodontics Seminar 2 s.h.
Treatment of patients requiring complete and removable partial dentures.
04:331 Tissue Methodology: Removable Prosthodontics Seminar 2 s.h.
Anatomical problems involving technical methods in construction of complete and removable partial dentures.
04:342 Practice Teaching: Removable Prosthodontics Seminar 2 s.h.
Clinical and classroom teaching experience arranged by faculty.
04:202 Jurist in Prosthodontics 1 s.h.
Review of current literature in prosthodontics.
04:255 Library Assignment: Removable Prosthodontics Seminar 3 s.h.
Discussion of assigned readings that are considered classics in removable prosthodontics literature.
This first permanent college-level department of education in the United States was established at The University of Iowa in 1872. The department became the School of Education in 1907 and the College of Education, structured in the basic pattern which governs it today, was founded in 1913. The growth of the College has corresponded to the growth of the University.

The College has eight divisions: Pre-Secondary and Continuing Education; Educational Administration; Early Childhood and Elementary Education; Educational Psychology, Measurement and Statistics; Secondary Education; Counselor Education; Special Education; and Instructional Design and Technology.

The University is accredited by the National Council for Accreditation of Teacher Education (NCATE) for the preparation of elementary and secondary teachers and other professional school personnel, with the doctorate the highest degree approved. Teacher preparation programs are also reviewed and approved by the Iowa Department of Public Instruction.

Teacher Education Programs

The College of Education offers undergraduate programs in teacher education, elementary teaching, secondary school teaching, teaching in special education for mentally retarded or physically handicapped children, and health occupations education.

Admissions

Students who are interested in becoming teachers should indicate their proposed teaching major on the Application for Admission to The University of Iowa. Students who decide at a later date to enter the Teacher Education Program (T.E.P.) must declare the appropriate teaching major as their major in the College of Liberal Arts. Advisement Office, 115 Schaeffer Hall, and submit an Application for Admission to the Teacher Education Program to the Office of Admissions, 107 Calvin Hall by May 15th preceding the academic year in which they apply for admission to professional education courses. Applications received after that date will be approved only if faculty and program resources permit.

General Information

Students admitted to the T.E.P. are degree candidates in the College of Liberal Arts or College of Business Administration and must complete the requirements for the Bachelor of Arts, Bachelor of Science, or Bachelor of General Studies degrees as explained in those colleges’ sections of the University Catalog. Policies, rules, and regulations of these colleges apply to students in the T.E.P. Students seeking the B.S.S. degree should especially note that a maximum of 40 semester hours of credit earned in the College of Education may be applied toward the degree.

Grade-Point Average

Although freshmen are admitted to the T.E.P., students are not eligible to enroll in professional education courses before they have completed 38 semester hours. The academic records of all students admitted to the T.E.P. will be reviewed at the end of each semester and students who have not maintained a 2.00 G.P.A. on all coursework attempted and on all University of Iowa coursework will be dropped from the T.E.P. Students who are dropped from the T.E.P. may reapply and may be readmitted when the required 2.00 G.P.A. is achieved. If enrollment limits have not been reached.

Limitations on Enrollments

Because of the limits of faculty and teaching stations, it may be necessary to restrict enrollments in early childhood education, elementary education, and special education, and in social studies and English in secondary education. In the event that the number of T.E.P. applicants exceeds the capacity of the program, students will be selected by rank order on the criteria established by the faculty.

Admission Requirements

To be admitted to foundation courses in education, an undergraduate student must:
Have been admitted to The University of Iowa as a degree candidate;  
Have completed the American College Test;  
Be free of any health impairment or physical handicap which will preclude teaching success;  
Have 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;  
Have achieved a 2.50 grade-point average on all college coursework attempted and coursework completed at The University of Iowa;  
Have submitted an Application for Admission to the Teacher Education Program (see date above).

Graduate students must:  
Have been admitted to the Graduate College;  
Have a cumulative grade-point average of not less than 2.50 (2.70 for M.A.T.) on undergraduate coursework.  
Have been admitted to a specific certification program (e.g., elementary education, special education or secondary English).

Student Teaching

The final phase of the Teacher Education Programs is the professional semester, devoted to supervised student teaching and directed observation in a variety of situations. Periodic seminars provide for discussion and evaluation of student teachers' experiences. The student teaching requirement may not be met by transfer credit except under unusual circumstances and with approval in advance.  
To register for student teaching, the student must have:  
Satisfactorily completed eight semester hours during one academic session in residence at The University of Iowa;  
Satisfactorily completed 77-75 Educational Psychology and Measurement, 7W 91; Audiovisual Equipment for Instruction (Elementary) and 7E 100; Introduction to Elementary and Early Childhood Teaching or 7S 100; Introduction to Secondary School Teaching or 7E 91 Pre-Education Practice or 7E 91 Pre-Education Practice;  
Satisfactorily completed the appropriate methods courses;  
Maintained a cumulative grade-point average of not less than 2.20 if an undergraduate student, 2.50 if a graduate student, 2.70 if an M.A.T. candidate on all college work attempted, all college work attempted at The University of Iowa and all work attempted in his or her teaching major;  
Filed application for an assignment by March 15 preceding the academic year during which student teaching is desired.

Waivers

Students who have completed prediscipline experience or courses which they feel should be considered in lieu of required tests should consult with their advisers concerning waiver procedures.

The CUTE Program

Students who feel they may better advance their educational interests through student teaching in an inner-city situation, and who are interested in working with inner-city youth, may apply to the Cooperative Urban Teacher Education (CUTE) program through the Director of Student Teaching, Iowa City of one of several midwestern institutions which place selected students in the Kansas City inner-city system. The program is open to any student who meets 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 another Australia, England, Republic of Ireland, Scotland, or Wales). Students must make their own travel arrangements, housing will be located for the student by the on-site coordinator. Students electing this program must meet the regular requirements for student teaching.

State Requirements

Certification to teach in many states requires a course in U.S. history or in American government. An initial certificate may be obtained in Iowa without meeting this requirement. However, a certified teacher who has not previously met the requirement must complete a minimum of two semester hours of U.S. history or American government before a certificate can be renewed. Students are, therefore, encouraged to include such a course in their preservice programs. Any of the following courses will satisfy the requirement:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
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<tbody>
<tr>
<td>361 Introduction to American Politics</td>
<td>4</td>
</tr>
<tr>
<td>(may also be used toward social science core requirement of the College of Liberal Arts)</td>
<td></td>
</tr>
<tr>
<td>181 American History 1492-1877</td>
<td>3</td>
</tr>
<tr>
<td>182 American History 1877-Present</td>
<td>3</td>
</tr>
<tr>
<td>181 The Colonial Period in America</td>
<td>3</td>
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<tr>
<td>181 The Colonial Period in America</td>
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<tr>
<td>181 American Revolution Period 1790-1798</td>
<td>3</td>
</tr>
<tr>
<td>181 United States in the Early Republic</td>
<td>3</td>
</tr>
<tr>
<td>181 Civil War and Reconstruction</td>
<td>3</td>
</tr>
<tr>
<td>18187 The Contemporary United States 1890-1940</td>
<td>3</td>
</tr>
<tr>
<td>18188 The Contemporary United States 1940-Present</td>
<td>3</td>
</tr>
</tbody>
</table>

Advanced Studies

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. The College of Education offers these advanced degree programs:

Master of Arts

The Master of Arts program is offered on both a thesis and nonthesis basis. The nonthesis M.A. program usually provides more specialized coursework that is found in the M.A. thesis program. The nonthesis program is not necessarily a terminal program, but students who expect to continue their studies on a doctoral program are urged to select the M.A. thesis program which offers more experience in research procedures. Students who complete a nonthesis M.A. program and are admitted to a Ph.D. program may be asked to submit evidence of writing in research skills to their adviser or division during the early part of their doctoral program.
Master of Science

Thesis and non-thesis programs are available for students desiring a concentrat-
on science. The degree outlines 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 included few if 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 art, business,
English, foreign languages, home economics, mathematics, music, and speech and
drama. A grade point of at least 2.70 on undergraduate coursework is
required for admission. At least 18 semester hours of graduate coursework in the
student's proposed teaching field must be completed. A sufficient number of semester
hours of graduate work in education (not less than 20) must be taken to satisfy certification
requirements.

Specialist in Education

This degree is granted upon the completion of a prescribed two-year, post-baccalaureate program designed for students preparing to teach in any of the fields as
teaching, administration and supervision and special services. Of the minimum of 60
semester hours required for the degree, 39 are prescribed in the area of specialization;
the remaining credit may be earned in cognate fields, supervised experience,
research and elective courses. The requirement must culminate in a written report. Other
requirements and regulations applicable to the E.S.R. are the same as for the master's
degree except that 15 semester hours of resident work in campus are required in one
12-semester period or in two summer sessions and coursework completed ten years prior to
the final examination must be evaluated to determine the amount of credit that may be
exempted 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 superior scholarship and mastery of research skills in coursework as
well as in the preparation and defense of a dissertation.

Professional Improvement

Students may be admitted to a professional improvement program for purposes of taking
limited coursework rather than a degree program. This program provides for minimal
advancement and is appropriate for persons seeking salary increases, who are undecided
about 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 incomplete information,
unclear degree objectives and the like, in order to permit registration in the University.

Certification Only

Students who have not been certified as
teachers and who do not wish to pursue the
M.A.T. or do not meet its admissions
requirements may be admitted under the
classification, "Certification Only." With
students in this program, the adviser plans
the academic major and educational
sequence aspects of the program to meet
the requirements for certification. Since
enrollment in early childhood education,
secondary education, special education and
social studies and English is the mandatory program is limited, admission of graduate
students to this program is as carefully
reviewed as for degree programs. Persons
who wish to meet certification requirements for professions other than as a teacher (i.e.,
counselor, administrator or curriculum specialist) and who meet basic requirements
and need only a few courses to validate or
update their certification should apply for
professional improvement status. Admission
to a certification only program requires a
minimum undergraduate grade-point aver-
age of 2.00.

Bulletin

Prospective graduate students should write to the College of Education for its bulletin,
Advanced Studies in Education, which provides specific information about the
various programs, admission procedures and requirements, and rules and regulations.

Support Units and Special Resources

The Center for Educational Experimentation, Development, and Evaluation develops
proposals, conducts studies, publishes reports and monographs, and provides pre-
and post-doctoral training. Its program relates to instructional technology, materials and
systems design and development, research, demonstration, and dissemination of
research and curricular products. It works in collaboration with federal, state and
private agencies, colleges and cooperating school districts to design and conduct
cooperative research, development, and evaluative projects.

The Computer-based Education Laboratory offers hardw Start.
and software? Support for computer applications and instructional development related to
ongoing instruction of the Center for Education.

The Curriculum Laboratory provides mate-
rials primarily for students and faculty
members interested in curriculum problems. It brings into a convenient central location
approximately 20,000 elementary and
secondary textbooks, reference works,
courses of study, bibliographies, pamphlets
and non-print media such as filmstrips,
games, records, etc. The Laboratory also
houses 1,200-volume youth collection.

The Early Childhood Education Center
provides practicum, coursework, and research opportunities for under-
graduate and graduate students preparing to work with prekindergarten children. The
Center enrolls some 84 children ages two months to five years. Both full-day and
half-day programs are provided.

The Educational Media Laboratory houses a
variety of instructional equipment and
materials. Its facilities provide opportunities
to develop skills in design and production of
teaching materials in the presentation of
instructional equipment of all types. In
addition, Laboratory staff members provide
service to students and faculty of the College
of Education for production of videotapes,
color slides, films, audio-visual, and
related products including production of
teaching materials in the presentation of
instructional equipment of all types. In
addition, Laboratory staff members provide
service to students and faculty of the College
of Education for production of videotapes,
education or in other fields as well as those interested in administration or positions in higher education are also served by this office.

The Education-Psychology Library has approximately 109,360 volumes. It provides books, periodicals, reference books, films, ERIC microfiche, tests and a reserved book room for students and faculty.

Instructional Activities for the Classroom Teacher is a cooperative program between The University of Iowa and the State Department of Public Instruction involving the whole state of Iowa. The purpose is to conduct an in-service program for all classroom teachers of the handicapped.

The Iowa Testing Programs staff develops standardized educational tests, such as the widely-used Iowa Tests of Basic Skills and Iowa Tests of Educational Development, for use in elementary and secondary schools. This department also conducts research projects in educational measurement and evaluation, publishes brochures, sponsors lectures and symposia, provides consulting services to school systems, and provides training experience for graduate students in measurement and statistics.

North Central Association (NCA) of Colleges and Schools is the largest and most active of six regional accrediting associations in the United States, Iowa is one of 19 NCA-member states. The NCA’s primary purpose is to foster improvement in education at the elementary, secondary and collegiate levels by self-evaluation of educational programs, evaluation teams and adherence to policies and standards for continued membership. The University of Iowa hopes and supports the office of the chair of the Iowa NCA State Committee.

The Reading Clinic makes possible investigation into the fundamental causes of reading disabilities and intervention with methods of overcoming these deficiencies. It provides opportunity for observation and practice in the diagnosis and teaching of severely阅读的资源．

Special Program for Emotionally Disturbed Children is located in the child psychiatry unit of the University’s Psychiatric Hospital. This program is for children with emotional and behavioral problems who are residential patients in the child psychiatry unit. The program is supported by the Department of Psychiatry and the College of Education. Opportunities are available for student teaching and practicum experience in school psychological services.

Statistical Laboratory contains a variety of calculating equipment. It provides experience in the application of such equipment to the analysis of statistical data, and it provides facilities for the analysis of research.

University Counseling Services are facilities available to students in counseling psychology for research and practicum purposes. University Hospital School is a University-affiliated facility and, as such, strives to provide a wide balance of direct services to developmentally disabled youth, inter-disciplinary training agencies for personnel and research projects into program development and effectiveness.

The Hospital School contains two unique but integrated service sections, a residential program for physically handicapped youngsters from throughout Iowa, and a day program for youngsters from surrounding school districts who are mentally retarded. Placement of children into the facility is worked out cooperatively with parents, appropriate area education agencies, and local school programs.

In addition to providing direct services to developmentally disabled youngsters, the Hospital School has two other closely related functions—specialized training for workers and trainees in all areas concerned with handicapped children, and clinical research pertaining to causes and prevention of handicapping conditions.

The basic philosophy of the facility is to return children to their local community programs within the shortest possible time. This philosophy is reflected in the maintenance of cooperative ties with local community programs. An active outreach activity is for visitors, pre-placement and follow-up updates, or through conferences held at the facility.

Teacher Certification Services

Though each state has its own certification requirements, a majority of state certification 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 University of Iowa teacher education programs have been approved by the Council. Students planning to major in special education are advised to be certain they will be eligible for certification if they plan to teach in a state other than Iowa.

Financial Aids

Employment in Research Facilities

The College of Education maintains experimental, research, and laboratory relationships with school systems and the University maintains schools for the physically handicapped, emotionally disturbed, and mentally retarded. Other facilities providing graduate experience in research and practice include the Reading Clinic; Statistical Laboratory; Center for Educational Experimentation, Development, and Evaluation; Iowa Testing Program; and the Early Childhood Education Center. The Curriculum Laboratory, Educational Media Laboratory, Computer-Based Education Laboratory, and the Education-Psychology Library provide faculty and students with opportunities for conducting research and developing new instructional techniques.

Persons interested in employment opportunities in these areas should contact the director of each facility and indicate their interests, their academic and experience records, and their career or degree goals at The University of Iowa.

Graduate Assistantships

Individual academic programs provide opportunities for teaching, research, or service assistantships, as well as fellowship and related employment opportunities. Inquiries should be addressed to the dean 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 not applied for admission, his or her student file is available for review by those responsible for selecting the assistantship(s) for their programs. Appointments are normally, but not always, made from within the program area of the assistantship.

Special Research Assistantship Program

The Iowa Testing Programs and the Iowa Measurement Research Foundation provide sufficient funds to support a limited number of Special Research Assistantships in
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 Aids.

L. A. Van Dyke Student Loan Fund

This loan fund has been established by former advisees, colleagues and other friends of Associate Dean Emeritus L. A. Van Dyke in recognition of his significant contribution to education in the state and the nation and is available to degree candidates in secondary education with superior performance records as scholars and as teachers or administrators. For further information and application blanks contact Professor J.E. McAdam, Division of Secondary Education, W104 East Hall, The University of Iowa, Iowa City, Iowa 52242, or the Office of Student Financial Aids.

College of Education Graduate Awards

Awards are presented to outstanding graduate students in the College of Education at the spring semester faculty meeting of the College. These are:

- Perry Eugene McClennen Award: To the outstanding student candidate in education administration.
- Paul C. Packer Award: To the outstanding candidate for the master's degree in education.
- Harvey A. Davids Award: To an outstanding student in educational administration or higher education, particularly a student interested in the financing of education.
- Pi Lambda Theta Graduate Award—M.A. and Ph.D. levels: To outstanding graduate students of high scholarship, promise in the professional areas of research, teaching, or writing, and striking personal qualities.

Faculty

Members of the College of Education faculty are proactive in research and writing and are well qualified by preparation and experience. Ninety-seven percent of the members of the faculty with academic rank hold earned doctorates in their teaching fields, and 95 percent have had teaching or administrative experience in the public schools.

A major strength of the College is its close working relationship with the College of Liberal Arts. With few exceptions, professors on the College of Education faculty also hold academic rank in the College of Liberal Arts. A majority of the professors who teach secondary school methods have doctorates in their teaching disciplines, as well as preparation in education, and hold academic rank both in their academic departments and in education.

Research and Development

The College has a strong history of commitment to educational development and research, as evidenced by the presence of the Lindquist Center for Measurement. In addition to independent research by individual faculty members, several studies are being pursued with the support of foundation and federal grants awarded to division and individual faculty members. Most members of the faculty are active in professional societies, and several recently have held or now hold key offices in such organizations at the national level. Systematic research programs are sponsored through the Center for Educational Experimentation, Development, and Evaluation.

Nontraditional Programs

Nontraditional programs in the College of Education are administered by coordinators who report to the Office of the Dean. Such programs include those which fall outside of the province of one of the divisions, are inter-disciplinary in character, or are of a temporary and experimental nature.

Counselor Education

Chair: R. Richard Duvall

Facilit: professors Ursula M. Dawson, B. Avanti Duvall, Allen L. Head, Laura A. Miller

Associate professors Harold L. Johnson, Carl L. Davis, Harold L. Engen, Carol Finley, Carol A. Jasten, William A. Mathias, Ralph L. Symbols, Ph.D.

Professors emeritus: C. Sayre Oblonsky, associate professor Louis K. Carter, Nicholas Colegrove, Hartley A. Ford, John R. McDonald, Priscilla Konigs, Carol R. Logreggi, Charles J. Meeke, Laurence Rosswood, Martin R. Schlimme, Ph.D.

Contact: Thomas R. Hilt, Wayde Macnab, Onida Wise, Ph.D.

The Division of Counselor Education is primarily involved in the training of practitioners and scholars at the graduate level. In addition, however, the Division offers training in interviewing and interpersonal skills for students in other professional and graduate programs as well as some basic courses in these areas for undergraduates.

Student Development Program in Postsecondary Education

M.A. Program

Purpose: 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 dean and college teachers.

Admission requirements: No specific program of undergraduate study or work experience is required, although students considered inadequately prepared will be expected to arrange for makeup courses.
while undergoing graduate study. A personal interview is desirable, but not required. Applicants will ordinarily be expected to meet at least one of the following qualifications:

A 3.00 minimum undergraduate grade-point average.
A total score of at least 1,000 on the Graduate Record Examination (aptitude test).
A 550 minimum score on one of the two aptitude portions of the Graduate Record Examination.
Evidence of outstanding leadership in extracurricular activities at an undergraduate institution.
Highly successful experience in the field.
Candidates must also evidence an appropriate level of emotional balance, personality, and interpersonal skills.

Students admitted on a conditional basis will usually be required to earn a 3.00 GPA to be admitted to regular status.

Ed.S. Program
Purpose: To provide specialized professional preparation in college student development beyond the master's level for persons not planning to enter doctoral study; to prepare candidates for such positions as associate dean or dean of students in a small college or as director of admissions, student activities, financial aid, student unions, career planning and placement, residence halls, foreign student services, community college counseling service, student advising, financial aid, student unions, career planning and placement, residence halls, foreign student services, community college counseling service, adult continuing education and external degree programs.

Admission requirements: Same as minimum requirements for Graduate College and M.A. program. Students admitted on conditional basis will usually be required to earn a 3.00 GPA to be admitted to regular status. The M.A. thesis or its equivalent is not necessary for admission to the Ph.D. program, but to take the Ph.D. comprehensive examination, the student must offer research evidence, through his/her M.A. thesis or its equivalent.

Counseling Psychology
Ph.D. Program
Purpose: Prepares doctoral-level counseling psychologists for positions primarily in higher education, usually with academic appointment in counseling psychology and service assignments in counseling centers. Graduates teach courses in counseling, conduct their own research and direct that of their students, supervise counselor trainers, and consult with other student services personnel. Graduates occasionally take service positions in community mental health agencies or private practice.

Admission requirements: Preference an undergraduate major or minor in psychology, or a major in some related field GPA of 3.00 or more; successful candidates for admission will typically have GRE (aptitude) scores of 1,150; letters of recommendation. In addition, a personal interview is required before final admission. All application materials must be received by March 1 of each year, students will be notified about March 15 concerning their applications. Very few students are admitted to the doctoral program each year.

Rehabilitation Counseling
M.A. Program
Purpose: Graduates of the program work in state rehabilitation agencies, sheltered workshops, rehabilitation centers, mental hospitals, prisons, and in other public and private agencies concerned with the rehabilitation of the handicapped.

Admission requirements: Same as minimum requirements for Graduate College. In addition, a personal interview is highly desirable. Applications are reviewed March 1 for fall admissions only.

Ph.D. Program
Graduates are prepared to provide leadership in college and university programs of rehabilitation counselor education and research programs within universities and state agencies.

Admission requirements: Same as minimum requirements for Graduate College. In addition, applicants who have recently graduated from an M.A. program in rehabilitation counseling, and who have not had at least one year of full-time work experience in rehabilitation counseling, must submit a written petition for not undertaking such work experience prior to admission to the doctoral program. Such work experience is viewed as highly desirable and applicants without such work experience will receive lower priority than applicants with such experience. Applications are reviewed March 1 for fall admissions. M.A. thesis or equivalent necessary.

School Counselor Education
M.A. Program
Purpose: To prepare individuals to function as counselors in a variety of settings.

Admission requirements: In addition to the Graduate College's minimum requirements, the faculty of the School Counselor Education program requires a minimum undergraduate grade-point average of 3.50 and the completion of specific forms by the applicant and the references. These forms will be sent by the Office of Student Personnel, College of Education.

Ed.S. Program
Purpose: To give an individual seeking preparation beyond the master's degree an opportunity to increase his/her competence as a counselor or school counselor. Applicants must provide a master's degree or its equivalent in counseling and have experience as a counselor. The applicant must have at least
To be eligible for recommendation by The University of Iowa for certification in Iowa to function as an elementary principal, secondary principal, or superintendent, an individual must:

- Hold or be eligible to hold an Iowa Permanent Professional Teaching certificate;
- Have a minimum of four years of successful teaching experience with a valid teaching certificate;
- Have completed at least 20 graduate semester hours of credit from the University; and
- Have a master's degree.

In addition, each candidate must also meet these requirements:

Elementary Principal (Endorsement 11): Completion of the educational administration program with elementary school emphasis; Secondary Principal (Endorsement 22): Completion of the educational administration program with secondary school emphasis; and Superintendent (Endorsement 62 61): 60 semester hours of graduate work in a planned program in general school administration, including courses listed in the general school section of the Ed.S. program, or such equivalent courses as the individual's advisor recommends.

M.A. in Educational Administration

The purpose of this program is to prepare individuals for appointments as elementary or secondary school principals, central staff, central personnel in state departments of education, or positions with area educational agencies.

The thesis program is recommended for students who plan to do graduate work for an advanced degree or who have a special interest in research.

Ed.S. in Educational Administration

The purpose of the program is to prepare students for appointments as superintendents of schools in state departments of education, area education agencies, or the U.S. Office of Education, and to assist school administrators in upgrading their administrative skills.

Ph.D. in Educational Administration

The purpose of this program is to prepare students for positions at all levels of school administration or to teach educational administration at the college level or university level.

Admission

Applicants must satisfy minimum requirements of the Graduate College. Candidates are selected through faculty review. Factors considered include grade-point average, Graduate Record Examination scores, and other evidence of academic ability and professional promise.

Courses

Educational Administration

70 150 The Teacher, the Law and the Courts 2.0 s.h.
Rights, privileges, responsibilities, and liabilities of teacher and student; negotiations, mediation, arbitration, bad leverage, personnel policies, grievance procedures, nonpublic problems of education relating to state and local decisions. Preparatory for undergraduate T/MA or T/S and 691 or consent of instructor.

70 250 Foundations of School Administration 2.0 s.h.
Introductory course, organized and administered by the American Public Education-Administrative and Concepts of Organization, Administration, Economics, Political, and Professional Role: Encouraging Role of Education and School Management.

70 264 Educational Systems Analysis and Operations Research 3.0 s.h.
Application of systems analysis and correlation research methods in educational systems, planning and design.

70 265 Secondary School Principal 2.0 s.h.
Principles and responsibilities of secondary school administrators in planning and implementing the educational program, staff selection, utilization and improvement, and organizing appropriate student personnel staff and the direction of managerial opportunities.

70 281 Elementary School Principal 3.0 s.h.
Organization, supervision, and administrative duties of elementary school, curriculum planning, instructional program and personnel management; role analysis and communication and management; budget preparation; and training program.

70 282 Elementary School Organization 2.0 s.h.
Organizational approaches analyzed with specific attention afforded to analyzing patterns of administrative functions in individual procedures.

70 283 School: Systemic Evaluation in Educational Administration 2.0 s.h.
Development of strategies, procedures and methodologies of evaluation and design; current trends and social change; satisfaction, organization, formative and summative evaluation, assessment of instruction, change in administration, program and program administration.

70 290 Public Relations 2.0 s.h.
Relationships between public school system and community: public concepts, principles and democratic process, agents of interpretation; modes of community relations.

70 291 Administration of Professional Personnel 3.0 s.h.
Problems of evaluating personnel, including preparation, employment, induction,而且还包括这门课程的描述、分析和方法论学的阐述。

70 301 Federal and State Relevance of Public Education 3.0 s.h.
Overview of school business administration and role of school business office, with emphasis on financial management, including budgeting procedures, financial accounting, and capital fundraising.

70 302 Federal Regulations and Operational Policies in Educational Systems 3.0 s.h.
Overview of federal and organizational behavior in educational systems application of developing techniques in the description, analysis, and methodology of administrative behavior.

70 303 Legal Aspects of School Personnel 3.0 s.h.
Emphasis on the teacher and student with special reference to the principles, standards, board, personnel, and personnel policies, school personnel: personnel policies of school personnel: personnel rules of court: court destruction: prospective deans: elementary deans: primarily for administrators but also of interest to others.
70:381 Seminar: Introduction
Problems of urban centers related to education, city government, fundamentals. small-scale research projects conducted by students: specialists in urban problems used as resources people. Readings: 3/27, 4/21, 5/30

70:382 Seminar: Administration and\nCoordination of Curriculum
2.5 s.h.
For students interested in pursuing careers in administrative career. opportunity to do intensive work in helping problems associated with the administration of school administrative in organizations, implementation, and operations in schools.
Prerequisites: 70:281 or equivalent & major of instruction

70:383 Seminar: Problems in Public\nAdministration
3.0 s.h.
Emphasis on structure and functioning of central government and general government, rules and trends in public administration, career development, improving human resources in administrative situations. formal and informal relationships between public and private sectors in modern industrial society.
Prerequisites: 70:281 or equivalent

70:380 Seminar: Computer Applications\nin Education
2.5 s.h.
Research and practice in application of computer for educational administration, instruction, evaluation.
Prerequisites: 70:281, 70:284

70:387 Seminar: School Business\nManagement Administration
1.0 s.h.
Problems in school business administration, with emphasis on contract and school business administration. Text: Lieber. Study, analysis of financial statements of school districts as result of course.
Prerequisites: 70:289

70:381 Seminar: The Economics of\nEducation
1.5 s.h.
Economics including supply and demand, social mobility, social welfare, miscellaneous, financial planning, capital investment, administrative efficiency, self-discipline. Prerequisite: 70:284

70:379 Seminar: Research Design
1.0 s.h.
For graduate students working toward doctoral degrees. Development of hypotheses, development, testing and evaluation of theories, methods of data gathering, design, hypothesis, statistics, research design.
Prerequisites: 70:289

70:371 Research Problems
Small-scale research project (involving in administrative) and student, with emphasis on curriculum and school business administration. Work: recent and current research projects with instruction of instructor
Prerequisites: 70:284

70:370 Educational Administration
8.0 s.h.
Supervised experience in working with educational administration. /Involving planning, evaluation, coordination of instruction.
Prerequisites: 70:284

70:377 Seminar: Policy and\nInternational Education
4.0 s.h.
Student involved in work of administrator. /Involving administration, development and study of administrative systems and development plans for public and international education.
Prerequisites: 70:281, 70:284, 70:381, 70:384, 70:387, 70:390

70:388 Seminar: Urban Problems\nin the Administrative Sciences Education
2.0 s.h.
Philosophical and sociological approach to understanding urban system to administration of public education. Various topics to include both community and student in democratic society and democratic educational system. Contemporary issues. Book: 77:388
70:381 Analysis and Application of Curriculum
3.0 s.h.
Development of systematic and research approach for understanding and evaluating the essential features and constituent elements of a given school district's curriculum. Evaluation, application, and supervision programs. Prerequisites: 70:380

70:382 Seminar: Supervision of\nInnovations
2.0 s.h.
Problems and practices in making effective with supervisors and staff groups. Emphasis on presentation of teaching research findings. Development of instructional techniques. emphasis on planning and evaluation of in-service instruction.
Prerequisites: 70:380, 70:384 and concurrent or equivalent

70:581 Workshop for School\nAdministrators
2.0 s.h.
Intensive practical study of school administration. Emphasis on problems arising in educational administration. Prerequisites: 70:380 and concurrent or equivalent

70:381 Seminar: Case Studies in School\nAdministrators
2.0 s.h.
Administrative problems and issues experienced in school administration, systematic analysis of case studies. Development of self-knowledge and self-confidence. Open to anyone who has had considerable experience in administration. Emphasis on course 70:381, 70:284 and concurrent or equivalent

70:382 Field Service Practice in\nEducational Administration
2.0 s.h.
Prerequisite: concurrent or equivalent

70:383 M.A. Thesis in Educational\nAdministration
2.0 s.h.
Prerequisite: concurrent or equivalent

70:384 Educational Research in\nEducational Administration
Prerequisite: concurrent or equivalent

70:483 Ph.D. Thesis in educational\nAdministration
Prerequisite: concurrent or equivalent

Early Childhood and\nElementary Education

Chair: Jerry J. Hyun
Associate professor: Alfred M. Bari, Alice West, Greg M. Dieterich

The programs offered by the Division are designed to provide graduates for employment in specific professional roles in public schools and institutions of higher learning. All programs have been approved by the Iowa Department of Public Instruction and meet National Council for Accreditation of Teacher Education approval standards.

Undergraduate Programs

Early Childhood Education
Early childhood teaching requires an understanding and appreciation of young children from infancy through the early elementary school years, and concomitantly the growth and development of the total child. Preparation for early childhood education involves study of child development, parent-child relationships, and organization and administration of child care centers, in addition to curriculum and methodology appropriate for young children. The program involves wide reading, critical thinking, and application of knowledge in working with groups of young children in private or public elementary classrooms or daycares. The early childhood education program is designed specifically to prepare students to teach children in infant-toddler groups, in classes for three-, four- and five-year-old children, and in kindergarten and meets the requirements of the Iowa endorsement number 53 for prekindergarten/Kindergarten teacher candidates.

Students interested in dual certification at the prekindergarten/kindergarten level and the kindergarten/elementary level should follow the elementary education program with the early childhood area of specialization resulting in endorsement numbers 10 and 53.

Program Requirements

Special Core Requirement
Students enrolling in early childhood education the Division of Education to complete the specialization in educational foundation classes for them. Completion of this core requirement is a prerequisite to enrolling in 70:112 Methods. Elementary School Science and 70:113 Methods: Elementary School Mathematics. This prerequisite may be satisfied in one of three ways:
Satisfactory completion of the special courses 77:55-60, and 229:50; or
Satisfactory completion of equivalent courses at another four-year approved institution;
Or prior completion of 6 s.h. of other science endomathematics courses which satisfy the College of Liberal Arts natural science core requirement, and the passing of specified tests dealing with the content of 77:55-67,59, and 229:50.
Student Teaching

Students should make application to the College of Education by March 15 preceding the academic year during which they plan to do their student teaching. Students register for 7E:108 Supervised Teaching in an Early Childhood Center. The student teaching period is one full semester for 15 semester hours of credit. No additional coursework may be taken during the student teaching semester.

Areas of Specialization

A minimum of three courses (or nine semester hours) from an area of specialization is required. The areas of specialization offered for early childhood education majors are child and family services, the family, child growth and development, language, language development, and educational needs of special children.

Students seeking Iowa Department of Public Instruction approval to teach preschool handicapped should select the educational needs of special children as their area of specialization and in addition to the major must complete all of the following courses: 70:130 Exceptional Children 3 s.h.
70:135 Mental Retardation 3 s.h.
70:135 Orientation to Rehabilitation of the Physically Handicapped Child 3 s.h.
70:120 Methods of Teaching Preschool Handicapped 3 s.h.
70:136 The Trajectory of the Severely Handicapped 3 s.h.
3:118 Psychology of Language II 3 s.h.
70:193 Laboratory Practice in Education of the Physically Handicapped Child 7 s.h.

The student should consult with their advisor concerning the choice of the area of specialization. Copies of the requirements for each area of specialization are available in the College of Education office and at the Early Childhood and Elementary Education Division office. Courses in the area of specialization may be taken pass-fail if this option is offered for them.

Elementary Education

Elementary teachers guide the learning experiences of children during the approximate age period of 5-12 years. They serve in a variety of school organizational patterns including self-contained rooms wherein the teacher assumes responsibility for most of the curricular areas, departmental positions where their responsibilities are concentrated in one or two subject areas, and team teaching assignments wherein 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 process, the selection and structure of curricular materials suitable for school age children, and the methodological procedures most appropriate for presenting these materials. Study in the program is rigorous. It involves wide reading, creative planning, and application of knowledge to the classroom.

The elementary education program is designed specifically to prepare students to teach kindergarten through sixth grade. Special sequences are also available for students seeking the print media elementary 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 note the requirements for admission to each of these programs. Students interested in this comparison must make a separate application to each program and these applications will be considered independently.

Program Requirements

Special Core Requirement

See description under Early Childhood

Foundation Courses

7E:91 Preschool Practicum or equivalent experience (TE:91 must be taken concurrently with 7E:100) 2 s.h.
7E:100 Introduction: Elementary and Early Childhood Teaching 3 s.h.
7E:105 Educational Psychology and Measurement 3 s.h.
7E:106 Audiovisual Equipment for Instruction 1 s.h.

Undergraduates should complete these in their sophomore year. Graduate students may elect equivalent graduate-level courses with the approval of their advisors.
Methods Sequence
7E:160 Methodology: Elementary School Language Arts 3 s.h.
7E:161 Methodology: Elementary School Social Studies 3 s.h.
7E:162 Methodology: Elementary School Science 2 s.h.
7E:163 Methodology: Elementary School Mathematics 2 s.h.
7E:164 Methodology: Elementary School Reading 3 s.h.

The elementary methods sequence must be completed before the student will be eligible for student teaching.

Student Teaching
Students should make application to the College of Education by March 15 preceding the academic year during which they plan to do their student teaching. Students elect 7E:191 Supervised Teaching in Elementary School or 7E:192 Laboratory Practice in Elementary School to 7U:191 Laboratory Practice in Education of the Physically Handicapped Child or 7U:193 Laboratory Practice in Education of the Mentally Retarded Child. and 7E:195 Supervised Teaching in Elementary School or 7E:198 Supervised Teaching in an Early Childhood Center may also be elected where appropriate. The student teaching period is one full semester for 15 semester hours of credit. No additional coursework may be taken during the student teaching semester. No more than two certifiable student teaching experiences may be taken in any semester.

Areas of Specialization
An area of specialization is required in a teaching field. The areas of specialization offered are elementary arts, bilingual education, early childhood, health education, elementary language arts, elementary mathematics, multicultural education, elementary music, elementary reading, elementary physical education, elementary science, elementary social science, special education, and elementary generalists. The student should consult with his or her advisor concerning courses which will serve to strengthen preparation for teaching in a subject area and meet the two or more requirements for that area. Copies of the requirements for each area of specialization are available in the College of Education Office and at the Early Childhood and Elementary Education Division Office. Courses in the area of specialization may be taken as a part of the program offered to them.

Graduate Programs

M.A. in Elementary Education

This degree program, which may be taken with (30 s.h. minimum) or without (22 s.h. minimum) thesis, is designed to prepare master's candidates in elementary education to serve as elementary teachers, grade-level or subject area supervisors, or curriculum consultants. Successful completion of this degree program together with four years of successful teaching experience qualifies the student for certification as an elementary school supervisor, Iowa endorsement number 12. Only one course (Elementary Curriculum, is specifically required of all candidates but each candidate must select at least one course from any of these areas: social foundations, educational psychology and measurement, and supervision. In addition, each candidate must complete an area of specialization and selected coursework in advanced methodology.

M.S. in Elementary Science

This degree program, which may be taken with (30 s.h. minimum) or without (24 s.h. minimum) thesis, is designed to prepare master's candidates in elementary education to serve as assistant or departmental science specialists. The 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 equivalent to that required for Iowa Elementary Teaching and endorsement number 10. Prior to completion of the degree, the applicant must have one year of successful teaching experience.

Four courses are required for all candidates:
7E:240 Advanced Techniques of Teaching Science in the Elementary School 3 s.h.
7E:302 The Science Curriculum in the Elementary School 2-3 s.h.
7S:550 Seminar: Science Education 1 s.h.
7E:352 Current Readings in Science Education 2 s.h.

In addition, all candidates must complete a concentration of 12-20 s.h. of coursework in at least two science areas. Courses selected for the concentration, and all remaining elective hours, must be approved by the advisor.

M.A. in Developmental Reading

This program, which may be taken with (30 s.h. minimum) or without (22 s.h. minimum) thesis, is designed to prepare graduate students for instruction as reading specialists in kindergarten and grades 1-12. Successful completion of this program, together with four years of successful teaching experience, qualifies the student for certification as a Reading Specialist, Iowa endorsement number 54.

The following are required of all candidates:
7E:171 Reading Clinic: Teaching Techniques 2-3 s.h.
7E:172 Reading Clinic: Teaching Practice 2-3 s.h.
7E:261 Building Foundations for Reading, Pre-Primary and Primary 2-3 s.h.
7E:265 Super-int. of Intermediate Grade Reading 3 s.h.
7S:194 Methods: High School Reading 2-3 s.h.
7E:364 Seminar: Elementary Reading 2-3 s.h.
7S:264 Seminar: Secondary Reading 2-3 s.h.

In addition, candidates must complete one or more courses in the curriculum, supervision, and social foundations areas. Remaining elective hours are selected with the advisor's approval.

Ph.D. in Elementary Education

The purpose of this program is to prepare students for the doctoral university teaching and research positions in elementary education and for research, curriculum, supervisory, or administrative positions in public school systems and governmental educational agencies.

The program requires a minimum of 90 semester hours, including hours earned for the dissertation. The plan of study for each student is prepared on an individual basis in consultation with an advisor. The final plan of study must be approved by the advisor and the Division chair.

As a general guideline, each student is expected to have a broad general background in all facets of elementary school education and to have a very strong area of specialization in at least one topic. Commonly selected specialization areas are...
null
72:181 Plaza in the Classroom 2.0 h. Designed primarily for the experience-teachers, to explore the development of social thought in the formerly and formal-operational stages. Major emphasis is on learning through social learning-flange. Emphasis on their tasks in classrooms, dealing with class-opinion from the data.

72:182 Plaza Model Workshop 1.5 h. 72:182 Plaza: Science in the Elementary School 3.0 h. Provides students with practical applications for classroom teaching. Includes client work, educational research, educational evaluation, and other areas of social science.

72:184 Workshop: Plaza for Teachers 3.0 h. For teachers interested in examining and improving their teaching practices. Includes hands-on projects, in-class discussions, and small group activities.

72:185 Art Education Workshop 2.0 h. Curriculum study for elementary school art teachers, with emphasis on new processes, new materials and methods. Includes studio practice, craft, fine art, demonstrations, observation.

72:186 curriculum foundations 2.0 h. Emphasis on the development of the elementary curriculum. Emphasis on the historical, philosophical, psychological, social, economic, cultural, educational, and social aspects of educational philosophy, principles, procedures and practices.

72:187 Workshop: Classroom Observation Techniques: Applications and Analysis 2.0 h. Application of systematic observation techniques to the interpersonal communications skills characteristic of classroom teaching and school counseling. Focus is on the role of the observer and the interaction that occurs in schools and classrooms, to analyze information and make decisions.

72:188 Supervision in Elementary Schools 3.0 h. Prepares prospective supervisors to meet the needs of School Personnel. Includes observation, feedback, supervision, counseling, and evaluation.

72:189 Laboratory Practica in Elementary Schools 4.0 h. Practical teaching and observation in selected areas of elementary schools. Includes observation, evaluation, and practice in classroom teaching.

72:190 Multicultural Concepts and Educational Systems 3.0 h. In-depth examination of educational practices within and between different cultures. Focus is on the cultural and educational perceptions of these cultural communities, the processes of the educational institutions, and the effects of these institutions on the students.

72:191 Art Education 2.0 h. Art education focuses on the development of art educators and inspires them to reflect on their practices. Focus is on the development of art educators and their role in the classroom.


72:194 General Model Programs in the Public Schools 2.0 h. Emphasis on the development of educational models for public schools, with a focus on the current trends in educational policy and practice.

72:195 School Meal Programs for Children: The Need for Standards and Evaluating 2.0 h. Emphasis on the development of educational standards for school meal programs, with a focus on the current trends in educational policy and practice.

72:196 Interventions to Improve Academic Outcomes 2.0 h. Emphasis on the development of interventions to improve academic outcomes in schools, with a focus on the current trends in educational policy and practice.

72:197 School Nutrition and Physical Education 2.0 h. Emphasis on the development of school nutrition and physical education programs, with a focus on the current trends in educational policy and practice.

72:198 Advanced Practice in Pre-Gymnastics 2.0 h. Emphasis on the development of advanced practice in pre-gymnastics programs, with a focus on the current trends in educational policy and practice.

72:199 Physical Education: The Role of the Teacher 2.0 h. Emphasis on the development of the role of the teacher in physical education programs, with a focus on the current trends in educational policy and practice.

72:200 Physical Education: The Role of the Teacher 2.0 h. Emphasis on the development of the role of the teacher in physical education programs, with a focus on the current trends in educational policy and practice.

72:297 Public School Curricula in Physical Education 2.0 h. Emphasis on the development of public school curricula in physical education, with a focus on the current trends in educational policy and practice.

72:298 Evaluating the Low Achieving in Physical Education 2.0 h. Emphasis on the development of evaluating the low achieving in physical education programs, with a focus on the current trends in educational policy and practice.

72:299 Special Problems in Physical Education 2.0 h. Emphasis on the development of special problems in physical education programs, with a focus on the current trends in educational policy and practice.

72:300 Supervision and Development in Physical Education 2.0 h. Emphasis on the development of supervision and development in physical education programs, with a focus on the current trends in educational policy and practice.

72:301 Ethical Issues in Physical Education 2.0 h. Emphasis on the development of ethical issues in physical education programs, with a focus on the current trends in educational policy and practice.

72:302 Research and Development in Physical Education 2.0 h. Emphasis on the development of research and development in physical education programs, with a focus on the current trends in educational policy and practice.

72:303 Research in Physical Education 2.0 h. Emphasis on the development of research in physical education programs, with a focus on the current trends in educational policy and practice.

72:304 Research in Physical Education 2.0 h. Emphasis on the development of research in physical education programs, with a focus on the current trends in educational policy and practice.

72:305 Research in Physical Education 2.0 h. Emphasis on the development of research in physical education programs, with a focus on the current trends in educational policy and practice.

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72:310 Research in Physical Education 2.0 h. Emphasis on the development of research in physical education programs, with a focus on the current trends in educational policy and practice.

72:311 Research in Physical Education 2.0 h. Emphasis on the development of research in physical education programs, with a focus on the current trends in educational policy and practice.
in the final year, candidates must write two three-hour or two-hour comprehensive examinations. These examinations must include the fields of educational measurement and applied statistics. The third examination, any, will cover educational psychology or an alternative area approved by the adviser.

M.A. in Reading Disability

Only a nonthesis (32 s.h. minimum) program is available in reading disability. The purpose of the program is to provide training in the diagnostic teaching of reading. Satisfactory completion of the program leads to endorsement (certification) as a reading clinician. Graduates may return to classroom teaching or seek positions as reading clinicians, resource teachers, or consultants.

In addition to admission requirements for the Graduate College, applicants for admission to the M.A. program in reading disability must have had two years of successful teaching experience.

The program requires completion of a common core course totaling 16 semester hours. Courses included in this core are:

PP 170 Introduction to Psychology of Reading 3 s.h.
PP 473 Reading Clinic: Diagnosis 2-3 s.h.
PP 150 Educational Measurement for the Classroom Teacher 2-3 s.h.
P 241 Individual Intelligence Testing 3-4 s.h.

In addition, each candidate must complete at least five semester hours of practicum-type courses chosen from an approved combination of:

TE 171 Reading Clinic: Teaching Techniques 2 s.h.
TE 173 Reading Clinic: Teaching Practicum 2-3 s.h.
TE 330 Reading Clinic: Supervision 2 s.h.
P 370 Teaching is a Reading Laboratory 3 s.h.

Elective courses (11 s.h. minimum) may be chosen from such fields as speech, psychology and audiology, elementary and/or secondary school literature and language arts, educational psychology, and elementary and/or secondary school curriculum. At least 15 of these courses must be in the fields of educational psychology. A 30-minute comprehensive examination in related fields, or to complete a project in lieu of 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.

Ph.D. in Educational Psychology

The purpose of this program is to provide training which will qualify graduates to teach educational psychology and to conduct research in this field.

Admission requirements are the same as those established by the Graduate College, except that the candidate’s GRE total score is less than 1000 or if other evidence (GPA, academic preparation, and experiences) warrants it, admission will be conditional. In such cases, the student must achieve a grade of C or better in two of the following courses (15-20 semester hours total) to continue in the program:

Teaching experience is highly desirable but not required for admission.

Qualified candidates who do not hold M.A. degrees will be admitted to the M.A. program (with thesis) and must earn that degree prior to formal acceptance into the Ph.D. program. A minimum of 72 s.h. is required for the Ph.D. degree but the typical student finds it necessary to earn 90 or more semester hours of credit to satisfy the degree requirements.

If a candidate is admitted to the Ph.D. program on the basis of an M.A. degree without thesis, the candidate must complete a project comparable to a master’s thesis. The project must be completed before the writing of Ph.D. comprehensive examinations.

Specific minimal course requirements include 17 s.h. of statistics and research methods, including at least one course in educational or psychological measurement, and three courses (9 s.h.) from the general areas of research in teaching and learning and instructional design.

In lieu of a written examination in one of these areas, the student may design a project approved in advance by his or her committee and the dean of the College. This project will involve the comprehensive use of analytical, evaluative skills or research creativity. It will demand a command of skills equivalent to sophistication to those demonstrated on a written examination. Ten or more semester hours of credit may be earned in the form of dissertation credit. The first requirement consists of an oral defense of the completed dissertation.

Ph.D. in Educational Measurement and/or Statistics

The purpose of this program is to prepare students for high-level professional positions in educational measurement, evaluation, and statistical methods. Such positions are frequently found in colleges and universities, state departments of instruction, and private and public school systems, test publishing firms, and research or evaluation centers.

Admission requirements are the same as those established by the Graduate College except that the candidate’s GRE total score is less than 1000 and no offering of evidence of superior ability in available, admission may be on a conditional basis. In such cases, the student must achieve a grade of C or better in two of the following courses (16-26 semester hours total) of registration to continue in the program.

Students expecting to concentrate in statistics should have training in college mathematics through multivariate differential and integral calculus; the calculus requirement may be met during the first year of residency status. At least one year of professional experience in teaching, research, or related fields is highly desirable. Qualified candidates who do not hold M.A. degrees will be admitted to the M.A. program (with thesis) and must earn that degree prior to formal acceptance into the Ph.D. program.

The program requires a minimum of 90 s.h. In addition to the common core courses listed for the M.A. degree, typical programs include advanced work in educational measurement and scaling of measures, classical and Bayesian methods of data analysis, research methodology and the planning of experiments, educational psychology, and the Ph.D. thesis (12 or more s.h.). Candidates who enter the
Financial Aids

The Division normally employs two graduate students as teaching assistants in educational psychology and two in educational statistics. These are half-time academic year appointments and holders are permitted to carry a study and/or research load of up to 12 in fall; 9 hour appointment. Teaching assistants are generally awarded to experienced advanced doctoral students in either educational psychology or educational measurement and statistics. Ineligible candidates may address inquiries to the chair of the Division.

Other types of graduate assistantships are supported by the Iowa Tests of Basic Skills and the Iowa Test of Educational Development. Duties are varied, including such responsibilities as test development, test norming, and teaching with students in the field whose pupils have participated in these testing programs. There are also a few other assistantships supported by the Iowa Testing Programs which are not specific to the two programs cited above. Inquiries should be directed to the program directors.

Courses

**PS** 103 Educational Psychology and Measurement 3 s.h.

- Factors in mental development and classroom teaching: child and adolescent character traits, problems in classroom management, construction, use, interpretation and evaluation of educational tests. Same as PS 117.

**PS** 102 Learner Characteristics 3 s.h.

- Overview of individual differences found in adult education for implications for teaching.

**PS** 100 Child Development 3 s.h.

- Developmental neurophysiological, biopsychosocial, and sociocultural characteristics of the human organism in its environmental context. Emphasis on cognitive and social development; effects of early experience. Same as PS 111.

**PS** 109 Personality and Mental Health 3 s.h.

- Personality and adjustment, moral and ethical development, and problems of integration of normal behavior; the role of cognitive and biological factors; effects of early experience. Same as PS 110.

**PS** 108 Development of the School-Age Child 3 s.h.

- Social development, intellectual influences, development of abilities and interests, effects of social class on social development.

**PS** 111 Understanding and Controlling Human Behavior 3 s.h.

- Factors influencing mental states and behavior, including personal characteristics, thought patterns, emotions and moods, learned and conditioned responses, needs, and goals controlling one's or another's behavior; the relationship between motivation and behavior in learning and social situations. Five-hour course.

**PS** 114 Specializing the Social Development of Children 3 s.h.

- Factors influencing social behavior of children, influences of models and "norms," effects of corrective and disciplinary activities; social impact, parent-child relationships, child-rearing techniques; care, protection, nurture of children's moral judgments and social adaptation and development of socially competent behavior. Five-hour course.

**PS** 113 Evolving the Individual Growth of Children 3 s.h.

- Environmental factors and activities building intellectual, social, and emotional growth in children; role of society, teachers, parents, settings, and peers groups. Types of household tasks, routine and disciplinary materials, and conditions contributing to growth of social and emotional intelligence. Five-hour course.

**PS** 118 The Educational Psychologist: School Reform in the 1960's 3 s.h.

- School reform efforts of the 1960's portraying their psychological and philosophical assumptions and impact on teacher's role in teaching. Same as PS 119 and PS 120. Eight-hour course.

**PS** 121 Educational Psychology 3 s.h.

- Teaching and learning; developmental, social, and cultural factors in behavior and attitude; current trends from psychological literature. Satisfactory/unsatisfactory grading base. Five-hour course.

**PS** 133 The Adolescent and Teenage Adult 3 s.h.

- Readings and discussions covering growth, psychological, social, and cultural factors in behavior and attitude; current trends from psychological literature. Satisfactory/unsatisfactory grading base. Five-hour course.

**PS** 134 Introduction to Statistical Methods 3 s.h.

- Analysis and interpretation of research data: descriptive statistics (frequency distributions, central tendency, variability); introduction to statistical inference (normality testing, simple linear regression, correlation, correlation coefficients: Pearson's, SPSS or equivalent). Same as PS 225/2; 31 443.

**PS** 146 Biopsychosocial Integration 3 s.h.

- Conceptual foundations, the biopsychosocial approach, interrelationships of physical and mental health issues; social and psychological factors in health and illness. Same as PS 143.

**PS** 150 Educational Measurement for the Elementary School 3 s.h.

- Discussion of the process of measuring pupil achievement: administration of appropriate achievement tests or: construction of valid instruments, administration and scoring; evaluation of test performance and pattern analysis of test scores; analysis of standardized achievement and attitude tests; introduction and use of nonparametric statistical tests; concept of standard error of measurement and its basis; test scores and their interpretation; test scores and their uses in teaching and learning. No prior training in statistics required.

**PS** 170 Interpretations in Psychology of Reading 3 s.h.

- Phonological and logical analysis of reading process; implications for teaching methods and materials. Factors related to reading development.

**PS** 183 Introduction to Teaching of Learning 3 s.h.

- Role of learning theory in psychology of learning: emphasis on current emphasis of learning approach to teaching and learning. Same as PS 225.

**PS** 188 Development of Children: An Introduction to Piaget 3 s.h.

- Introduction to the cognitive development of children; emphasis on Piaget's own conceptions and interpretations of his own ideas and concepts as they relate to teaching.

**PS** 193 Cognitive Development in Children: An Introduction to Vygotsky 3 s.h.

- Emphasis on the development of cognitive development and its applications to classroom instruction. Same as PS 225/3.

**PS** 205 Special Readings and Projects 3 s.h.

- Supervised individual study. Prerequisites: senior standing and consent of instructor.

**PS** 206 Individual Differences and Testing 3 s.h.

- Study of individual differences and their implications for instruction.
of

7H:161 Designing Learning Programs for Health Sciences Education 3 s.h.

Group II

7H:162 Learning Strategies for Health Career Education 3 s.h.
7H:112 Teaching of Adults 3 s.h.

Group III

7H:271 The Community College 2-3 s.h.
7H:107 Philosophy of Vocational Education 2 s.h.

Additional Requirements

7H:190 Community College Teaching Internship 12 s.h.
7H:190 Seminar, Health Occupations Education 3 s.h.
Additional specialty coursework in health occupations education 10 s.h.

Students may enroll in special workshops or courses outside of specific health colleges when appropriate prerequisites have been met.

Coursework may also be taken in specific basic sciences supporting health occupations education.

In addition to coursework in the health specialty basic sciences, students may also choose electives from the following:

7H:175 Post-High School Staff Development Workshop 0-2 s.h.
7H:140 Introduction to Statistical Methods 3 s.h.
7H:161 Introduction to Theories of Learning 3 s.h.
7H:265 Motivation in Education 3 s.h.
7H:110 Processes of Change and the Curriculum 2-3 s.h.
7H:150 Psychological Aspects of Women's Roles 1-3 s.h.
7H:91 Auditory Equipment for Instruction 1 s.h.
7H:103 Selection and Use of Media for Instruction 2 s.h.
7H:120 Introduction to Instructional Design and Technology 3 s.h.
Coursework in the health occupations education specialty and supportive fields should be carefully planned with consultation with the adviser.
Graduate Programs

Higher Education

Master's Program (without thesis)

Purpose: To prepare students for entry-level staff and administrative positions such as assistant dean of instruction, in two- and four-year colleges.

Educational Specialist Program

Purpose: To provide the advanced graduate education needed by instructors at the undergraduate level in two- and four-year colleges and by administrators in higher education not planning to continue for the doctorate. The Educational Specialist degree may be awarded upon completion of a joint program in higher education and an academic discipline comprising a minimum of 80 semester hours of graduate work, or upon completion of a higher education sequence following a master's degree program.

Doctoral Program

Purpose: To prepare professional personnel for teaching, research, and administration in higher education.

Adult Education

Master's Program (with or without thesis)

Purpose: To prepare basic understanding of adult learning theory, instructional methodology and adult group processes in preparation for careers as professional adult educators or in areas that involve working with adults in such areas as schools, libraries, extension, public health and community development programs.

Doctoral Program

Purpose: To prepare for teaching, research and advanced leadership positions in the field of adult education, emphasizing given to a broad background with cross-disciplinary relationships.

Iowa Community College Certification

Students who wish to meet certification requirements for community college teachers in Iowa (Endorsement 72) must complete a minimum of six semester hours of course work in higher education and/or closely related areas. Required (specific alternatives may be chosen in consultation with the Office of Community College Affairs).

7H271 The Community College 2-3 s.h.
7H230 Intern Seminar 3-5 s.h.
7H330 College Teaching Internship 3 s.h.
7A112 Teaching of Adults 3 s.h.

A master's degree in the student's teaching area is required for certification in Iowa and science areas.

Special Facilities

A resource center and collection relating to community colleges are available for students doing research or seeking employment information.

Courses

Adult Education

7A118 Introduction to Adult Education 2 s.h.
7A119 Methods of Adult Education 2 s.h.
7A120 Teaching of Adults 2 s.h.
7A223 Pedagogy in Adult Education 2 s.h.
7A224 Administration of Adult Education 2 s.h.
7A225 Individual Instruction in Adult Education 2 s.h.
7A226 Workshop Mentoring 3 s.h.
7A227 Seminar: Adult Education 2 s.h.
7A228 Professional Seminar 2 s.h.

Higher Education

7H303 Individual Study: Higher Education 2 s.h.
7H304 Directed Study: Higher Education 2 s.h.
7H305 Internship in Higher Education 2 s.h.
7H306 Seminar in Higher Education 2 s.h.
7H307 Workshops in Higher Education 2 s.h.
7H308 Topics in Higher Education 2 s.h.
79.336 Higher Education Management 7-3-2-1
Primarily directed at graduate students pursuing careers in the higher education field, this course examines the structure, functions, and policies of higher education institutions. Prerequisite: Consent of instructor.

79.325 Higher Education Research 1-3-1-1
This course focuses on the design, implementation, and analysis of educational research studies. Prerequisite: Consent of instructor.

79.345 Administration of Educational Institutions 3-3-1-1
This course provides an overview of the administrative processes in educational institutions, including budgeting, personnel management, and strategic planning. Prerequisites: Consent of instructor.

79.333 Teacher Education 3-3-1-1
This course is designed to prepare students for teaching careers in secondary schools. Prerequisites: Consent of instructor.

79.310 Community College Administration 3-3-1-1
This course examines the administration and operation of community colleges. Prerequisites: Consent of instructor.

79.320 Supervision in Higher Education 3-3-1-1
This course focuses on the principles and practices of supervision in higher education settings. Prerequisites: Consent of instructor.

79.315 Leadership in Higher Education 3-3-1-1
This course explores leadership theories and practices in higher education. Prerequisites: Consent of instructor.

79.314 Student Affairs in Higher Education 3-3-1-1
This course examines the role of student affairs in the higher education setting. Prerequisites: Consent of instructor.

79.305 Industrial Relations in Higher Education 3-3-1-1
This course covers the principles of industrial relations as applied to higher education. Prerequisites: Consent of instructor.

79.300 College Teaching Internship 1-3-1-1
This internship provides practical experience in college teaching. Prerequisite: Consent of instructor.

79.303Practices in Higher Education 3-3-1-1
This course focuses on the practices and innovations in higher education. Prerequisites: Consent of instructor.

79.337 Special Problems in Higher Education 3-3-1-1
This course examines special problems and issues in higher education. Prerequisites: Consent of instructor.

79.310 History and Philosophy of American Higher Education 3-3-1-1
This course explores the history and philosophy of American higher education. Prerequisites: Consent of instructor.

79.314 Higher Education Curriculum 3-3-1-1
This course focuses on the development and design of higher education curricula. Prerequisites: Consent of instructor.

79.313 Social Problems in Higher Education 3-3-1-1
This course examines social problems and issues in higher education. Prerequisites: Consent of instructor.

79.312 Disciplinary Problems in Higher Education 3-3-1-1
This course explores disciplinary issues and challenges in higher education. Prerequisites: Consent of instructor.

79.311 Administrative Problems in Higher Education 3-3-1-1
This course addresses administrative problems and challenges in higher education. Prerequisites: Consent of instructor.

79.310 College Teaching Internship 3-3-1-1
This internship provides practical experience in college teaching. Prerequisite: Consent of instructor.

Secondary Education

Chair: John R. McFarland
Faculty: Profs. Robert Cartman, Robert M. Fish, Melvin D. Simons, Frank R. Schuler, Robert E. Yager, Melvin J. Winsler, and M. Earle Tozer

79.310 Methods of Teaching in Secondary Education 4-2-2-1
This course focuses on the methods and techniques of teaching in secondary education. Prerequisites: Consent of instructor.

79.315 Supervision in Secondary Education 3-3-1-1
This course examines the principles and practices of supervision in secondary education. Prerequisites: Consent of instructor.

79.314 Student Affairs in High Schools 2-3-1-1
This course focuses on student affairs in high schools. Prerequisites: Consent of instructor.

79.313 Social Problems in Secondary Education 2-3-1-1
This course explores social problems and issues in secondary education. Prerequisites: Consent of instructor.

79.312 Disciplinary Problems in Secondary Education 2-3-1-1
This course examines disciplinary issues and challenges in secondary education. Prerequisites: Consent of instructor.

79.311 Administrative Problems in Secondary Education 2-3-1-1
This course addresses administrative problems and challenges in secondary education. Prerequisites: Consent of instructor.

79.310 College Teaching Internship 2-3-1-1
This internship provides practical experience in college teaching. Prerequisite: Consent of instructor.

79.333 Teacher Education 4-2-2-1
This course is designed to prepare students for teaching careers in secondary schools. Prerequisites: Consent of instructor.

79.310 Community College Administration 2-3-1-1
This course examines the administration and operation of community colleges. Prerequisites: Consent of instructor.

79.320 Supervision in Higher Education 2-3-1-1
This course focuses on the principles and practices of supervision in higher education settings. Prerequisites: Consent of instructor.

79.315 Leadership in Higher Education 2-3-1-1
This course explores leadership theories and practices in higher education. Prerequisites: Consent of instructor.

79.314 Student Affairs in Higher Education 2-3-1-1
This course examines the role of student affairs in the higher education setting. Prerequisites: Consent of instructor.

79.313 Social Problems in Higher Education 2-3-1-1
This course explores social problems and issues in higher education. Prerequisites: Consent of instructor.

79.312 Disciplinary Problems in Higher Education 2-3-1-1
This course examines disciplinary issues and challenges in higher education. Prerequisites: Consent of instructor.

79.311 Administrative Problems in Higher Education 2-3-1-1
This course addresses administrative problems and challenges in higher education. Prerequisites: Consent of instructor.
includes a practicum experience for a semester during the senior year. Students preparing to teach art, music or physical education typically take methods courses and acquire student-teaching experience at both the secondary and elementary levels. During the freshman and sophomore years, the student completes most of the general requirements for the bachelor's degree by acquiring proficiency in matric, mathematica, physical education and a foreign language, and by satisfying core requirements in literature, natural science, social science and historical-cultural fields. Program Requirements Foundations Courses Undergraduate candidates for a certificate to teach in a secondary school (junior or senior high school) should complete the foundations courses listed below in their sophomore or junior year. Graduate students may, with the approval of their advisers, elect equivalent graduate courses which satisfy the foundation requirement. 75:91 Pre-Education Practicum 2 s.h. 75:100 Introduction: Secondary School Teaching 2 s.h. 75:75 Educational Psychology and Measurement 3 s.h. Methods and Student Teaching Students must complete the special methods course in their major teaching field prior to the semester in which they elect to do student teaching. Students should make application for student teaching by March 15 preceding their senior year. The student teaching period is for the full semester for 12 semester hours of credit. Students with certain teaching majors may be required to register in one of the optional courses listed below concurrently with 75:191-192 Observation and Laboratory Practice in the Secondary Schools. Faculty advisers should be consulted about this requirement before registration. 75:190 Individual Projects in Laboratory Practice 1 - 3 s.h. 75:187 Seminar Curricular and Student Teaching 1 - 3 s.h. 75:103 Selection and Use of Media for Instruction 2 s.h. Teaching Majors and Minors A sufficient number of courses must be completed to satisfy the requirements for a teaching major in a department within the College of Liberal Arts or the College of Business Administration. The completion of an academic major as defined by the major department will satisfy this requirement in most cases. It is suggested that students select sufficient work in a field outside the area of the major to be recommended to the University, as teaching in a second field (30-24 s.h.), be completed. Copies of the teaching major and minor requirements are available in the College of Education Office and at the Secondary Education Division office. Graduate Program Members of the Division of Secondary Education serve as advisers to graduate students who are candidates for the M.A.T., M.A., M.S., Ed.S., or Ph.D. degrees. Opportunities are provided for advanced study in such fields as secondary school administration, secondary school curriculum, art education, business education, English education, mathematics education, music education, physical education, science education, social studies education and speech education. Programs leading to the M.A.T. degree are provided in some teaching fields for students with superior academic records who have earned the baccalaureate degree but who have not completed work for teaching certification at the undergraduate level. Other graduate programs leading to the M.A., M.S. and Ed.S. degrees, which usually combine advanced work in the academic disciplines and professional education, are designed to enhance the preparation of classroom teachers, department heads, supervisors, curriculum consultants, directors, and coordinators for secondary schools and community colleges. More extensive interdisciplinary programs leading to the Ph.D. degree also prepare individuals to serve as college or university instructors in their respective fields of specialization in colleges of education or in the academic departments of their major field, in addition to the types of positions previously mentioned. Some of the interdisciplinary programs are administered jointly by the College of Education and other academic departments of the University. Programs leading to the M.A., Ed.S. and Ph.D. degrees are also provided for the preparation of administrative and supervisory personnel who may assume positions of leadership in the field of secondary education, including college and university instruction in this area. Generally speaking, the minimum requirements pertaining to admission, registration, academic standing, residency, etc., of students in advanced degree programs in secondary education do not exceed the requirements outlined in the "Manual of Rules and Regulations of the Graduate College." Two major exceptions to this generalization do frequently occur, however: applicants for admission to most of the degree programs in this Division require a year or more of successful teaching experience, and in the cases noted in the following matrix, the minimum grade-point requirement exceeds the Graduate College minimum. The following are the types of advanced programs offered by the Division of Secondary Education: Secondary School Curriculum—M.A., Ph.D. Business Education—M.A., Ph.D. English Education—M.A., Ph.D. Mathematics Education—M.A., Ph.D. Physical Education—M.A., Ph.D. Science Education—M.A., M.S., Ph.D. Social Studies Education—M.A., Ph.D. Speech Education—M.A. Minimum grade-point average for admission is 3.0. More specific information about such items as admission requirements and procedures, required and elective courses, tool requirements and comprehensive examinations in the various advanced degree programs cited above is contained in the bulletin entitled Advanced Studies in Education. Financial Aids A limited number of half-time assistantships is available for students pursuing Ph.D. degrees in secondary education. Holders of such assistantships are permitted to register for no more than 12 hours per semester. Unless special permission is granted, holders must register for at least nine hours per semester. The assignments of assistants vary. Some involve the participants in teaching selected undergraduate courses or in the supervision of practicum experiences. Other assignments are primarily in research.
78.235 Teaching the Law Activist 9 a.h.
Implementing programs for improving both attitude and proficiency of law students in mathematics.
Same as 78.250.

78.239 Teaching of Algebra 3 a.h.
Arts.

78.246 Supervision and Administration of Media 3 a.h.
Open to graduate students and experienced teachers with consent of instructor.

78.248 Industrial Media Workshop 1-2 a.b.
Same as 78.24.

78.243 Supervision of Physical Education 3 a.h.
Designed primarily for administrators and experienced teachers who wish to increase their understanding of the supervision of physical education. Emphasis will be placed on the role of the principal as a leader in the instructional program and on the training of new supervisors.

78.250 Teaching of Geometry 3 a.h.
Curriculum development, instructional materials, and analysis of current teaching methods and techniques in general mathematics instruction in public schools. Same as 78.230.

78.251 Managing Business Instruction 3 a.h.
Development of effective business teaching at all levels, with emphasis on curriculum development, design, methodological, and supervisory, same as 60.210.

78.252 Elementary School Counseling 3 a.b.
Senior-level course in counselor education. May be repeated once for credit. Same as 60.250.

78.253 Teaching of English as a Second Language 3 a.b.
Teaching English as a second language at the elementary and secondary levels. Focus on the use of language arts and the development of reading, writing, and speaking skills. May be repeated once for credit. Same as 60.250.

78.258 Psychology of the Mind II 3 a.h.
Nature of mental health, perception, aesthetic responses, moral edification of children and adults teaching. Same as 78.250.

78.259 Program and Research Problems in Science Education 3 a.b.
Identification and research problems in science education, including the roles of scientific inquiry and curiosity in students' learning.

78.260 History of Science and Its Role in Science Instruction 3 a.b.
Continued historical and sociological understanding of the nature of science and its applications in teacher education. Same as 78.260.

78.261 Developing Curricula for Science 3 a.b.
Theory and techniques for designing meaningful and relevant materials for science programs.

78.262 Biomedical Problems and Methods in Behavior and Teaching of Biology 3 a.b.
Discussion of various topics regarding the legal aspects of teaching about religion, same as 60.262. Development of instructional methods of teaching about religion, relating to religious experience of various groups. Same as 60.262.

78.263 Curriculum Development in the Social Studies 3 a.b.
For student administrators, curriculum specialists and experienced social studies teachers. Major areas include present status of social studies curriculum, trends growing out of curriculum research and development in past decade, problems involved in curriculum development and evaluation, investigative study required.

78.264 Current Issues, Trends, and Materials in Social Studies Teaching 3 a.b.
Emphasizes current issues for improved teaching of social studies, including ethical dilemmas, social issues, contemporary events, and current research. Same as 60.264.

78.265 Advanced Techniques of Supervision in Social Studies 3 a.b.
For department heads, administrators and other educational personnel. Same as 60.265. Same as 60.265.

78.266 Social Studies Education 3 a.b.
Facilitating the teaching of social studies, emphasis on the periodical literature, research in various aspects of social studies, same as 60.266.

78.267 Elementary and Middle School Social Studies Organization and Administration 3 a.b.
The development and implementation of middle school, training of future administrators of middle schools, research in supervision and early adolescence, and research in the development of a curriculum for social studies, same as 60.267.

78.268 Curriculum Development for Social Studies 3 a.b.
For teaching social studies in junior high school and middle schools, same as 60.268.

78.269 Elementary and Middle School Curriculum Development 3 a.b.
For teaching social studies in junior high school and middle schools, same as 60.269.

78.270 Improving Instruction in the Secondary School 3 a.b.
Designing the program and comprehensive examination for secondary schools, same as 60.270.

78.271 Secondary School Curriculum Development 3 a.b.
For teaching social studies in junior high school and middle schools, same as 60.271.

For teaching social studies in junior high school and middle schools, same as 60.272.
178 Theories of Social Foundations of Education 3.5 b

179 Social foundations of education are concerned with the social and economic structures that shape the educational experiences of students. The theories and principles underlying education are examined in relation to the historical, cultural, and political contexts in which they were developed. The focus is on understanding the role of social structures in shaping educational opportunities and outcomes.

180 American Contribution to Educational Theory 3.2 b

American philosophy and its influence on American public education are explored. This includes an examination of the contributions of key figures in American education, such as John Dewey and Horace Mann, and the development of educational policy and practice in the United States.

181 Chinese and Other Oriental Contributions 3.2 b

This section examines the educational systems and practices of China and other Eastern countries. It explores the historical and cultural influences that have shaped education in these regions, and the impact of these systems on contemporary educational practices.

182 Social and Political Influences 3.2 b

This section focuses on the role of social and political factors in shaping educational policies and practices. It examines the impact of economic, social, and political changes on education, and the ways in which education can be used as a tool for social change.

183 Educational Research and Evaluation 3.5 b

This section covers the methods and techniques used in educational research, including qualitative and quantitative research methods. It explores the role of research in informing educational policy and practice.

184 Educational Policy and Practice 3.5 b

This section examines the development of educational policy and practice in the United States, and the challenges and opportunities facing educators in today's rapidly changing educational landscape.

185 Educational Leadership and Administration 3.5 b

This section focuses on the role of educational leaders in shaping educational policy and practice. It explores the skills and strategies needed to effective educational leadership, and the impact of leadership on educational outcomes.

186 Educational Technology 3.5 b

This section examines the role of technology in education, including the use of technology in teaching and learning, and the impact of technology on educational policy and practice.

187 Educational Policy and Practice 3.5 b

This section examines the development of educational policy and practice in the United States, and the challenges and opportunities facing educators in today's rapidly changing educational landscape.

188 Educational Leadership and Administration 3.5 b

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191 Educational Leadership and Administration 3.5 b

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192 Educational Technology 3.5 b

This section examines the role of technology in education, including the use of technology in teaching and learning, and the impact of technology on educational policy and practice.
Satisfactory completion of 97.55-56 and 25M:80.

Students not passing the science examination must successfully complete 97.104; students not passing the mathematics examination must successfully complete 25M:80.

Elementary Mental Retardation Program

7U:150 Exceptional Children 3 s.h.
7U:155 Mental Retardation 3 s.h.
7U:30 Introduction to Services for Handicapped 1 s.h.
7U:32 Instructional Methods and Procedures in Special Education I 3 s.h.
7U:33 Instructional Methods and Procedures in Special Education II 3 s.h.
7U:55 Methods Practicum in Special Education 2 s.h.
7U:136 The Trinimix and Substantially Mentally Retarded Child 2-3 s.h.
7U:192 Laboratory Practice in Education of the Mentally Retarded Child 7 s.h.

Elementary Physical Disabilities Program

7U:130 Exceptional Children 3 s.h.
7U:139 Orientation to Rehabilitation of Physically Handicapped Child 3 s.h.
7U:30 Introduction to Services for Handicapped 1 s.h.
3/15 Introduction to Speech and Hearing Processes and Disorders 3 s.h.
7U:32 Instructional Methods and Procedures in Special Education I 3 s.h.
7U:135 Mental Health of the Physically Handicapped 3 s.h.

7U:350 Methods Practicum in Special Education 2 s.h.
7U:191 Laboratory Practice in Education of the Physically Handicapped Child 7 s.h.

Secondary Mental Retardation Program

7U:130 Exceptional Children 3 s.h.
7U:135 Mental Retardation 3 s.h.
7U:30 Introduction to Services for Handicapped 1 s.h.
7U:32 Instructional Methods and Procedures in Special Education I 3 s.h.
7U:33 Instructional Methods and Procedures in Special Education II 3 s.h.
Two semesters of: 7U:35 Methods Practicum in Special Education 2 s.h.

Other required coursework:
7P:75 Educational Psychology and Measurement 3 s.h.
7E:105 Introduction to Secondary School Teaching 2 s.h.
7P:170 Introduction to Psychology of Reading 3-4 s.h.
7W:391 Auditory Visual Equipment for Instruction 1 s.h.
7W:103 Selection and Use of Media for Instruction 2 s.h.
34-1 Introduction to Sociology: Principles 4 s.h.
34-140 Criminology or 34-141 Juvenile Delinquency 3 s.h.
7U:192 Laboratory Practice in Education of the Mentally Retarded Child 15 s.h.

Graduate Programs

Graduate programs are offered in elementary and secondary learning and emotional disabilities, school psychology, work-study coordination, administration of special education and teacher education.

General Admission Requirements

All applications are reviewed by an admissions committee of the Division of Special Education.

The following are required for admission to any of the graduate programs in the Division of Special Education:
A minimum grade-point average of 2.50 for admission to master’s and Education Specialist degree program, 2.70 for doctoral work.
Completion of the Graduate Record Examination (Graduate Record Examination) before being admitted to the program (combined scores of 1000 or above are preferred).
Ability to work with children and youth (see specific requirements in each program area); and
Letters of recommendation documenting the ability to work with children and youth (see specific requirements in each program area).
Successful interpersonal relationships in employment situations, and potential for success as a graduate student.

School psychology students should note that March 1 is the deadline for the receipt of all application materials (application form, official transcripts, official GRE scores, letters of recommendation, and statement of purpose for entering program). No more than 10 students are accepted in the school psychology program each year.

M.A. Program (nonthesis)

Minimum total semester hours required: 38

Purpose: To prepare teachers to implement a wide range of educational plans to assist the exceptional child in school, to function as resource teachers, itinerant teachers and teachers in self-contained classrooms.

Successful completion of this program qualifies the person for recommendation for certification in teaching the emotionally disabled or the learning disabled.

Admission requirements: See general admission requirements above. Students must be eligible for certification in elementary education (low endorsement 10); or secondary education (low endorsement 20) prior to being admitted to the program. It is preferred that candidates have one or more years of teaching experience. A list of required courses is available from the Division of Special Education office.

Ed.S. Program with Emphasis In Special Education

Minimum total semester hours required: 60
Purpose: To provide advanced graduate training for professionals in the field of special education. This may include individuals in consultation, supervisory work, and study coordination in special education.

Admission requirements: See general admission requirements above. Additional requirements include a master's degree in Special Education or equivalent; preparation and certification in special education; and a minimum of one year full-time teaching experience before admission to the program.

Ed.S. Program with Emphasis in Special Education Administration

Minimum total semester hours required: 60
Purpose: To provide sufficient training and experience to enable graduates to be competent directors of local, regional, and state special education programs. Successful completion of the program qualifies the person for certification in Iowa to serve as a director of special education (Iowa's Endorsement 46); students are encouraged to complete sufficient coursework in general school administration to qualify for the superintendent's credential.

Admission requirements: See general admission requirements above. Additional requirements include a master's degree or its equivalent; preparation and certification in at least one of the areas of special education; and teaching or related relevant experience with exceptional children. A minimum GRE (Aptitude Test) score in excess of 1000 is preferred.

Ed.S. Program with Emphasis in School Psychology

Minimum total semester hours required: 60
Purpose: To provide the necessary coursework and internship training in the areas of education and psychology to enable graduates to be competent school psychologists. Successful completion of the program qualifies the person for certification in Iowa (endorsement number 40) to serve as a school psychologist, providing the graduate of the program has had two years of successful teaching experience; otherwise, temporary certification is granted until two years of successful performance as a school psychologist have been completed.

Admission requirements: See general admission requirements above. The applicant must also have work experience which demonstrates an interest in children and/or adolescents and demonstrates the ability to work with them individually and in groups; the experience must be verified by letters of reference and evaluation. A 3.0 grade-point average on previous degree coursework is preferred.

Ph.D. Program

Minimum total semester hours required: 90
Purpose: To prepare students as consultants, school psychologists, directors of special education and university teacher trainers. The program permits students to study and practice more extensively in their area of interest in special education.

Admission requirements: See general admission requirements above. Additional requirements include a master's degree or equivalent; a minimum of one year full-time teaching experience with exceptional children in all areas except school psychology; and a statement indicating the student's perceived training needs.

Special Facilities

Special facilities available to students in Special Education include the University Hospital School (for mentally and physically disabled) and the University Psychiatric Hospital/Children's Psychiatric Program for children and youth with behavior disorders.

Financial Aid

A limited number of teaching and research assistantships are available to full-time students in M.A., Ed.S. and Ph.D. programs. The J. J. Zuber Memorial Tutor Stipend is available to an upper-division or undergraduate student in the training program for teachers of the physically handicapped.

Courses

7233 Instructional Methods and Procedures in Special Education I

3 s.h.

Course in a variety of instructional methods of instruction for children with various handicapping conditions; special emphasis on teaching reading and mathematics. Primarily for PhD program. Spring. Prerequisites: 7135. 7231/7233 or 7234 and admission to Teacher Education Program in Special Education.

7233 Instructional Methods and Procedures in Special Education II

3 s.h.

Course in assessment and program development in social and self-help areas. Est. development for classroom management and communicating with parents. Spring. Prerequisite: 7233.

7234 Methods in Special Education

3 s.h.

Course in evaluation and research methodology, with emphasis on evaluative research in special education. Est. development for conducting research. Spring/summer. Prerequisite: 7233.

7234 Special Education and Developmental Disabilities

3 s.h.

Assess teaching effectiveness in special education. Emphasis on the need for evaluative research in special education. Spring. Prerequisite: 7233.

7234 Exceptional Children

3 s.h.

Survey of exceptional children and school programs for transfer students and nonmajors in special education. Spring. Prerequisite: 7233.

7234 Introduction to Learning Disabilities

3 s.h.

Survey of the field of learning disabilities. Topics include normal/abnormal learning, diagnostic/intervention approaches, and current issues in special education. Spring. Prerequisite: 7233.

7234 Introduction to Emotional Disabilities

3 s.h.

Survey of emotional disorders, including emotional disturbance, and the treatment of emotional disturbance in special education and other settings. Spring. Prerequisite: 7233.

7234 The Culturally Different in Educational Settings

3 s.h.

Course in teaching culturally different children of school age. Emphasis on the development of programs and techniques for working with culturally different children. Spring. Prerequisite: 7233.

7234 Model Restraint

3 s.h.

Backward systematic desensitization and application of principles to specific problems. Spring. Prerequisite: 7233.

7234 The Troublesome and Unbehaveable Mentally Retarded Child

3 s.h.

A program designed to foster professional growth in the area of mental retardation. Spring. Prerequisite: 7233.

7234 Education and Gifted

3 s.h.

A course designed to help professionals learn how to identify and work with gifted children. Spring/summer. Prerequisite: 7233.

7234 Methods of Teaching Physically Handicapped

3 s.h.

A course designed to acquaint students with the development and the use of the physically handicapped. Spring. Prerequisite: 7233.
Engineering is the profession in which a knowledge of the mathematical and natural sciences is applied to develop ways to economically utilize the materials and forces of nature for the benefit of mankind. The major aim in engineering is the creation of a new process, product, material or system that is useful to our society. The activity demands a high degree of creativity coupled with broad knowledge, good judgment and a practical sense of economics.

The College of Engineering prepares young men and women for one or more of the many career opportunities in the engineering profession. Such opportunities include positions in design, production, development, research, management and consulting. Engineers are employed in industrial organizations, governmental agencies and in private practice.

The College of Engineering has two major responsibilities. The first is the responsibility for the undergraduate engineering curricula, laboratories, counseling and other aspects of the undergraduate engineering programs. The second responsibility is the graduate programs leading to the M.S. and Ph.D. degrees in modern areas of engineering. Education at the graduate level includes extensive activities in creative research and design in laboratories of the College by faculty members and graduate students.

Programs Offered

The College of Engineering offers curricular programs leading to the Bachelor of Science, Master of Science and Doctor of Philosophy degrees in the professional fields of chemical engineering, civil engineering, electrical engineering, industrial and management engineering, and mechanical engineering.

The College also offers an undergraduate program leading to the Bachelor of Science degree in engineering for those students whose career objectives cannot be met by the professional programs; typical of such opportunities is the biomedical engineering program.

Any of the undergraduate programs offered by the College of Engineering may be combined, in a five-year option, with a program leading to the Bachelor of Arts degree in the College of Liberal Arts.

The undergraduate programs in Chemical, Civil, Electrical, Industrial, and Mechanical Engineering are accredited by the Engineers Council for Professional Development.

Organization of the College

Extraordinary demands have been imposed on the engineering profession in general and on engineering education in particular by the broadening spectrum of activities in which the engineer practices and the increasing complexities of technology. The College has responded to these demands by departing from the traditional pattern of organizational structure of engineering colleges. The College of Engineering has organized its faculty and facilities into different types of administrative units—academic programs, divisions and an institute.

The academic program units are identified as Biomedical Engineering, Chemical and Materials Engineering, Civil and Environmental Engineering, Electrical and Computer Engineering, Engineering, Industrial and Management Engineering, and Mechanical Engineering. Each program unit consists of faculty who have a major interest in and are responsible for the area represented by the curriculum. The faculty are responsible for design of curricula at all degree levels; for counseling of undergraduate and graduate students, and for all other matters affecting the individual student and his or her academic program. The chief administrative officer of each program is the program chair.

The divisions are identified as Energy Engineering, Information Engineering, Materials Engineering, and Systems Engineering. These units are the basic operating units of the College and consist of faculty and facilities organized according to broad functional areas of modern engineering endeavor. Each division is responsible for the development and operation of all laboratories at all levels of activity and for all purposes; for the content, teaching, and scheduling of all academic courses; and for the conduct of all research programs. The
chieft administrative officer of a division is the
division chair.

This grouping of resources according to
broad functional areas combined with strong
formal curricular programs provides clear
insight for the student of the interdisciplinary
nature of modern engineering while he is
engaged in formal academic studies.

Additionally, the facsimile arrangement broadens the educational base of
the College and encourages interdisciplinary
and innovative programs.

Iowa Institute of Hydraulic
Research

The Iowa Institute of Hydraulic Research
(IHHR) is the third basic unit of the College.
The Institute is widely acknowledged to be
one of the world's leading organizations in
the areas of basic and applied fluids research.

The institute conducts programs of
fundamental research and advanced design
and analysis in the areas of environmental
pollution, biotechnology, water;
hydrodynamics, river mechanics, ice
hydraulics, hydrology, water resources,
hydraulic structures, fluid mechanics, and
advanced instrumentation and data handling
techniques for fluids research.

Direct student participation in all research
and consulting activities is one of the
chief goals of the Institute's operation.

College Facilities

The Engineering Library

The Engineering Library is a center of
Colleague activity. Its collection includes
45,000 books and 750 periodicals. It is
equipped with microfilm and microfiche
readers.

Computer Services

The University Computer Center
services are used extensively by students and faculty
of the College, under the auspices of the
Computer center. The College
itself maintains remote terminals for
conventional access to the University
computer and key-punch equipment in the
CBE laboratory.

Computer Based Education
(CBE) Laboratory

The Computer Based Education Laboratory
provides on-line interaction with the
University's IBM 360-65 and HP-2000
computer systems via video display and
hard copy terminals. The laboratory also
contains other commonly used computer
accessory equipment such as key punches
and line printers, as well as video terminals
for instructional purposes.

Placement Services

Students and alumni can avail themselves of the
placement services provided by the
College of Engineering. Interview rooms and
a placement library of informational material
are located in the Engineering Building.

Placement assistance is available for arranging
interviews and obtaining information on job
opportunities.

Undergraduate Programs

Degree Requirements

The Bachelor of Science degree in
engineering requires a minimum of 128
semester hours of credit including satisfac-
tion of the specific requirements of the major
program as described in following sections.

The candidate must be enrolled in
the College of Engineering for at least the last 30
semester hours or 45 of the last 60 semester
hours and must have maintained GPA of 2.0
on all college work used to satisfy the degree
requirement and on all work undertaken at
the University of Iowa.

Curricular Structure

The undergraduate programs in Engineering
at Iowa are designed to provide the student
with a strong background in those
fundamental areas upon which all engineer-
ing is based, substantial depth in the branch
of engineering chosen for specialization, and
sufficient background in the social sciences
and humanities to appreciate the societal
implications of engineering projects.

The curriculum consists of four streams
extending through the entire four years of
undergraduate study. The items are
mathematics, basic and applied sciences,
socio-humanistic studies, and analysis and
design. The mathematics basic and applied

The curriculum for the freshman year is:

First Semester
4/13 Principles of Chemistry I
10/1 Rhetoric
10/3 Rhetoric
22M/32 Engineering Calculus I
58C/1 Introduction to Engineering
58C/3 Engineering Graphics
Total
4.5
2.0
4.0
4.0
4.0
2.0
2.0
15.0
Second Semester
4/16 Elementary Chemistry
Laboratory I
and Dramatic Art; or other departments approved by the College faculty. Students may select courses from departments not included above with the approval of the associate dean for undergraduate programs. Students will select a minimum of three semester hours of advanced (100-level) coursework in the historical-cultural areas to secure sufficient depth of knowledge in an elected subject of study. Language courses will not satisfy any of the historical-cultural requirements unless the courses are at or beyond the second-year level. Studio courses in art and music will not fulfill the requirement.

### Classification of Students

Students in the College of Engineering are classified by the number of semester hours of credit earned and applicable to a bachelor's degree in engineering, according to the following table:

<table>
<thead>
<tr>
<th>Class</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>38-55 semester hours</td>
</tr>
<tr>
<td>Sophomore</td>
<td>52-55 semester hours</td>
</tr>
<tr>
<td>Junior</td>
<td>56-62 semester hours</td>
</tr>
<tr>
<td>Senior</td>
<td>63-69 semester hours</td>
</tr>
</tbody>
</table>

#### 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 average based on all work taken at The University of Iowa shall be placed or continued on academic probation:

- Freshman: 1.70
- Sophomore: 1.80
- Junior: 1.85
- Senior: 1.90

A student whose semester and cumulative grade-point averages equal or exceed those appropriate to his or her classification is 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 reenter without specific approval following two consecutive semesters on probation. A student who has not achieved satisfactory improvement may be dismissed from the College. A student dismissed from the College for poor scholarship may petition the associate dean for undergraduate programs for permission to reenroll after an interval of two regular semesters.

### Cancellation of Registration

A student in good academic standing who cancels his or her registration during the final four weeks of a regular semester, or during the fall three or two weeks of a twelve- or eight-week summer session, respectively, will not be permitted to enroll for the immediately following semester without specific approval from the associate dean for undergraduate programs.

A student on scholastic probation who cancels his or her registration at any time without good cause will be considered as having been dismissed for poor scholarship. Cancellation cards for students enrolled in the College will be signed by the associate dean for undergraduate programs only after recommendation of the student's scholar and program chair.

### Credit by Examination

Students who have acquired knowledge in subject matter areas from sources other than course registrations may be granted the opportunity to obtain credit toward graduation by examination. Conditions and limitations of this policy are established by the faculty of the College of Engineering. A student wishing to exercise this opportunity should apply to the associate dean for undergraduate programs.

### Pass-Fail Option

A maximum of two courses taken on a pass-fail basis may be applied toward satisfaction of the socio-humanistic requirement. The P-F option may not be used for courses taken to satisfy the rhetoric requirement.

### Second-Grade-Only Option

A student may elect to repeat a course with only the new grade being counted in his or her GPA. This option can only be elected prior to the time of completing a course for which the repeated course is prerequisites.
The option may be applied to a maximum of 18 semester hours of work. Students wishing to exercise this option should apply to the associate dean for undergraduate programs.

The Combined Program

In response to an increasing demand for engineers with strong backgrounds in the sciences, social sciences and languages, Iowa offers a combined program leading to the Bachelor of Arts degree in the College of Liberal Arts and the Bachelor of Science degree in the College of Engineering. By proper scheduling of coursework in consultation with advisors from the Colleges of Liberal Arts and Engineering, the student in the combined program can normally meet the baccalaureate degree requirements of both colleges in five academic years.

Cooperative Education Program

Cooperative education involves the integration of academic work with practical experience in an organized program. Participating students spend alternate periods in full-time academic study on campus and in full-time engineering-related employment in business, industry or government.

While the student can earn a substantial portion of college expenses during the work periods, the success of the program depends on the work experience having significant educational value as well. This is assured by careful monitoring of the work environment provided by participating employers and by matching student interest and ability to the work situation.

The insight gained by involvement in the practical applications of subject matter studied in the classroom usually results in improved performance during the study periods with a corresponding improvement in academic record. Another important aspect of the experience gained, although it is difficult to evaluate, is the increased awareness of the many nontechnical considerations involved in any engineering project.

The co-op phase ordinarily begins during or immediately following the sophomore year and continues until the beginning of the senior year. The total time for the degree program under this option is normally five years and includes at least one full year of work experience. The program is an option available to qualified students on a voluntary basis.

Admission

Freshmen

To qualify for admission to the College of Engineering as a freshman, an applicant must have:

- Completed the American College Test with a composite standard score of 24 or above and a standard score of 24 or above in mathematics;
- 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.

High school physics and chemistry are recommended for all applicants.

Transfer Students

The applicant must submit a formal application and official transcript of all college work. Each applicant should have:

- Completed at least one semester of calculus or its equivalent;
- Maintained a cumulative grade-point average of at least 2.25 (C) based on a four-point grading system.

A maximum of 64 semester hours credit (or the equivalent) from a junior college will be accepted toward a baccalaureate degree. After reviewing the records of either a freshman or transfer student applicant who does not meet minimum admission requirements, the director of admissions may admit the applicant unconditionally, admit on probation, require a summer session trial enrollment, or deny admission.

Applicants who do not meet all of the criteria for admission to the College of Engineering are automatically considered for admission to the preengineering program in the College of Liberal Arts.

Student Organizations and Activities

The College of Engineering student body is organized as the Associated Students of Engineering. This provides a mechanism for planning and carrying out activities involving the entire College such as the annual Open House, MECCA Week, and the student- society reception for new students. Other College-wide matters of general student interest are also handled through the A.S. of E.

Engineering students publish their own student journal, the Newport Engineer. All positions are filled by students, with faculty serving only in an advisory capacity.

Student branches of the American Institute of Chemical Engineers, the American Institute of Industrial Engineers, the American Society of Civil Engineers, the American Society of Mechanical Engineers, and the Institute of Electrical and Electronic Engineers are active at Iowa.

The University chapter of Tau Beta Pi, an honorary engineering society, 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 fraternity; Chi Epsilon, honorary civil engineering fraternity; Eta Kappa Nu, honorary electrical engineering fraternity; and Pi Tau Sigma, honorary mechanical engineering fraternity, recognize the work of outstanding students in their respective fields.

Student organizations dedicated to providing social and recreational development or more equitable enrollment of women and minorities in the College are the Black Students in Engineering and the student chapter of the Society of Women Engineers. A local chapter of Theta Tau, a national professional engineering fraternity, is active in service to the College and draws its membership from students throughout the College.

Professional Registration

Registration as a professional engineer is governed by the laws of each state. The minimum requirements include graduation from a recognized engineering curriculum of at least four years, followed by at least four years of practical experience.

The Iowa Board of Engineering Examiners has adopted the plan of admitting College of Engineering graduates to the rating "Engineer in Training" by examination on
Course Numbering System

The six of each course offered by the College of Engineering is preceded by a one-digit prefix and a three-digit suffix separated by a colon.

The first digit of the prefix is 5 which identifies the course as being offered by the College of Engineering. The second digit of the prefix identifies the division of the College which offers the course according to the correspondence presented below:

52 Energy Engineering
54 Information Engineering
56 Materials Engineering
58 System Engineering

The 3rd digit of the prefix identifies the curricular program for which the division offers the course, with the correspondence between the third digit and the curricular programs as shown below:

0 Undergraduate Engineering Civil Programs
1 Biomedical Engineering
2 Chemical Engineering
3 Civil Engineering
5 Electrical Engineering
6 Industrial and Management Engineering
7 Courses common to more than one program
8 Mechanical Engineering

The three-digit suffix of a course number identifies the level and type of course. Generally, the suffix numbers below 100 designate courses primarily for undergraduate students, and from 100 to 199, advanced courses for undergraduate and graduate students, and from 200 and above, graduate courses specially for graduate students. The table below provides further details of conveying information on the level and type of course:

001-009 freshman core program courses
010-019 sophomore core program courses
020-029 junior core program courses
030-069 required courses in undergraduate programs
071-094 undergraduate professional program seminars
095-097 contemporary topics courses for undergraduates
098 individual investigation courses for undergraduates
101-109 courses for which little or no engineering science or mathematics background is required
110-119 graduate elective courses
120-129 seminars for undergraduates and graduates
151-157 contemporary topics courses for undergraduates and graduates
199 individual investigations for graduates
480 M.S. thesis research
510-528 upper level graduate courses
529-533 seminars for graduates
525-527 contemporary topics courses for graduates
599 Ph.D. thesis research

The courses offered by each division are listed within each division's section by dependency area starting with the lowest level course and proceeding to the highest level course.

Biomedical Engineering

Program chairman: Kuan Yu
Faculty: professors: Robert L. Schissler, Ching Jen Chyi, Graham D. MacIntosh, Lucille M. McDonald, Kevin Rho

Adjunct professors: Eugene A. Brand, Takanori Yama

Assistant professors: Steve N. Collins, Ray O. Crowther, Yongh Hoon Seok

Course offerings: B.S.

The past two decades have seen a tremendous growth of technological activity in biology and medicine. As engineers have become increasingly involved with projects in the life and health sciences, there has been an increased need for them to become more familiar with the fields of biology and medicine. Recognition of this need has led to the emergence of a new interdisciplinary engineering profession. The undergraduate biomedical engineering program is a curricular option offered within the Bachelor of Science program in engineering.

The curriculum outlined below is built on the foundation provided by the College of Engineering core curriculum, and has been developed to prepare students for the challenges and opportunities associated with careers in the biomedical engineering profession. Students who complete this program may pursue career opportunities in industry (instrument design and development of biomedical instrumentation, diagnostic aids, life support systems, prosthetic and orthotic devices, mini-machine systems, etc.), or they may elect to continue their formal education in the engineering, medical or legal professions. The program has been carefully designed so that it is possible to satisfy the entrance requirements of the Graduate College and the colleges of Medicine, Dentistry and Law.

Extensive graduate-level biomedical engineering research activities within the College of Engineering have led to numerous M.S. and Ph.D. degrees. Many engineering college faculty members have joint appointments in the colleges of medicine and dentistry. Both undergraduate and graduate engineering students participate actively with college faculty members and their colleagues in the life and health sciences on projects of mutual interest.

Curriculum

Sophomore Year

First Semester
22M.37 Engineering Calculus II
350.16 Thermodynamics I
540.1T Dynamic Systems Analysis I
560.10 Materials Science I
681.02 Dynamics
Total
17 s.h.

Second Semester
22M.38 Differential Equations and Linear Algebra
573.10 Principles of Animal Biology
540.12 Dynamic Systems Analysis II
520.20 Mechanics of Fluids and Transfer Processes
Total
18 s.h.

Junior Year

First Semester
650.39 Probability and Statistics for Engineering and Physical Sciences
582.21 Principles of Design I
540.29 Electromagnetic Theory
4 s.h.
One very important application is in the production of engineering materials from basic raw materials.

Courses which have been designed primarily for the chemical engineering Program are identified by the digit 2 in the third position of the course number prefix.

Course descriptions are provided in the catalog information within the section devoted to the Division of Materials Engineering.

Undergraduate Program

The Bachelor of Science degree program in chemical engineering prepares the student for work in design, supervision, development, or sales. The curriculum includes extensive training in chemistry. In addition to the basic engineering courses, undergraduate students have the opportunity to work with faculty members and graduate students on significant problems.

Curriculum

Sophomore Year

First Semester

561:93 Biomedical Engineering 3 s.h.
Technical electives 6 s.h.
Total 9 s.h.

Second Semester

561:94 Biomedical Engineering 3 s.h.
Design II 3 s.h.
Technical electives 6 s.h.
Socio-Humanistic electives 3 s.h.
561:91 Professional Seminar 0 s.h.
Total 15 s.h.

First Year

Senior Year

First Semester

561:83 Biomedical Engineering 3 s.h.
Design I 3 s.h.
Technical electives 6 s.h.
Socio-Humanistic electives 6 s.h.
561:91 Professional Seminar 0 s.h.
Total 15 s.h.

Second Semester

561:94 Biomedical Engineering 3 s.h.
Design II 3 s.h.
Technical electives 6 s.h.
Socio-Humanistic electives 3 s.h.
561:91 Professional Seminar 0 s.h.
Total 15 s.h.

Total 15 s.h.

Total 14 s.h.

Graduate Program

The programs leading to the M.S. and Ph.D. are more flexible than the undergraduate program. The emphasis is on research since the opportunity for graduate students is in industrial research and development. About one-third of the program is devoted to a research project, and a thesis is required for each degree.

Research is currently being carried out in reaction kinetics, interfacial thermodynamics, fluid flow, fusion phenomena, constitutive equations, particle characterization, and use, and biomedical engineering. More recently the faculty have embarked on research in such interdisciplinary areas as biomechanics and radiation and aging effects in materials.
Civil and Environmental Engineering

Program chair: Harriett Kane
Faculty: professors Div E. Sunden, Richard R. Degeste, Horace Kane, Jr., John M. McHale, Donald B. McQuade, Royce L. Rockwell, William H. Sapse, senior professors Cyril M. Harrington and Gerald E. D. Donaldson, Keith A. Long

Civil engineering is the oldest and one of the three largest fields of engineering. It traditionally has been concerned with facilities which are both large-scale and essential to modern life. Civil engineering projects include transportation systems and their components, such as bridges, highways, public transit systems, railways, harbors, airports, reservoirs, and waste treatment systems. Large structures and office buildings require extensive engineering and design. Engineering and design are also important in the daily lives of most people and industries, such as bridges, roads, water treatment plants, and mining operations.

The continuing need for these and similar projects accounts for the demand for civil engineers through both government and private industry. The variety of tasks that the individual civil engineer is qualified to perform is such that the civil engineer is particularly suited to assisting with the planning and design of large projects. The curriculum of these civil engineers may be tailored to meet the needs of the individual student.

Civil and Environmental Engineering

Undergraduate Program

The course of study in civil engineering builds on the College of Engineering core curriculum. The student is expected to design a curriculum of courses that meets these requirements.

Junior Year
First Semester
580:039 Probability and statistics for Engineering and Physical Scientists
540:252 Electrostatics
580:241 Professional Seminar
580:232 Principles of Design I
*Required sequences 8-7

Second Semester
592:020 Hydrology
583:081 Professional Seminar
580:222 Principles of Design II
*Required sequences 3-6

Socio-humanistic elective

Total 15

Senior Year
First Semester
583:086 Soil Mechanics
583:081 Professional Seminar

*Design elective and/or technical elective

**Required sequences 3-4

Socio-humanistic elective

Total 15-18

Second Semester
583:081 Professional Seminar

*Design elective and/or technical elective

**Required sequences 3-6

Socio-humanistic elective

Total 15-18

Curriculum

Sophomore Year
First Semester
22N:073 Engineering Calculus III
530:19 Thermodynamics
540:11 Dynamic Systems Analysis I
560:10 Dynamics
560:15 Materials Science I

Total 17

Second Semester
22M:038 Differential Equations & Linear Algebra
520:20 Fluids and Transfer Processes
540:12 Dynamic Systems Analysis II
560:18 Mechanics of Deformable Solids

Socio-humanistic elective

Total 17

Junior Year
First Semester
580:039 Probability and statistics for Engineering and Physical Scientists
540:252 Electrostatics
580:241 Professional Seminar
580:232 Principles of Design I
*Required sequences 8-7

Second Semester
592:020 Hydrology
583:081 Professional Seminar
580:222 Principles of Design II
*Required sequences 3-6

Socio-humanistic elective

Total 15

Senior Year
First Semester
583:086 Soil Mechanics
583:081 Professional Seminar

*Design elective and/or technical elective

**Required sequences 3-4

Socio-humanistic elective

Total 15-18

Second Semester
583:081 Professional Seminar

*Design elective and/or technical elective

**Required sequences 3-6

Socio-humanistic elective

Total 15-18

Curriculum

Sophomore Year
First Semester
22N:073 Engineering Calculus III
530:19 Thermodynamics
540:11 Dynamic Systems Analysis I
560:10 Dynamics
560:15 Materials Science I

Total 17

Second Semester
22M:038 Differential Equations & Linear Algebra
520:20 Fluids and Transfer Processes
540:12 Dynamic Systems Analysis II
560:18 Mechanics of Deformable Solids

Socio-humanistic elective

Total 17
Graduate Programs

The graduate program in civil and environmental engineering offers curricula preparing students for professional careers and further study in environmental engineering, hydraulic engineering, structural and geotechnical engineering, transportation engineering and water resources.

The hydraulics and water resources curricula are associated with the Iowa Institute of Hydraulic Research, whose laboratory is world-renowned. The senior staff members of the Institute are professors in the program and devote about half-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 of Economic Research, the Institute of Urban and Regional Research, and the colleges of Business, Law, and Liberal Arts. Courses in hydraulics and water resources are described in this catalog, within the section devoted to the Division of Energy Engineering.

The environmental engineering curriculum has two basic aims, 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 campus, including the Institute of Hydraulic Research, the Institute of Agricultural Medicine and Environmental Health, the Institute of Urban and Regional Planning and the colleges of Business, Law and Liberal Arts.

Coursework and research in the general program of study or specialization in one of three areas: water quality management, air quality management or solid waste management. Environmental engineering and science courses are described in the Division of Energy Engineering section of this Catalog.

The structural and geotechnical curriculum may be directed towards design, analysis, research or a combination of these. Special strengths exist in the areas of time dependent behavior of reinforced and prestressed concrete structures, optimal design of structural systems and soil behavior. Coursework and research in structural analysis, structural design, soil mechanics and foundations, and optimal design are available. Courses in these areas are described in the section of this catalog devoted to the Division of Materials Engineering.

Transportation engineering includes work in planning, design, construction and operation of transportation systems and facilities. A cooperative relationship exists with the graduate program in urban transportation offered by the Center for Urban Transportation ("Urban Transportation"). Transportation courses are described in the Division of Systems Engineering section of this Catalog.

Laboratory and other facilities available in the civil and environmental engineering program are described in the Division of Energy Engineering and Division of Materials Engineering sections of this Catalog.

Master of Science

The Master of Science programs in civil and environmental engineering are designed to permit further concentration in the area or areas of the student's choice. Graduates are placed in advanced technical positions in industry, consulting firms, or in government, or they may continue their graduate study if qualified. Current and projected demand for M.S. graduates is excellent.

In general, the plan of study, whether or without thesis, must include a minimum of 30 semester hours credit, with not more than six semester hours of credit allowed for thesis work. An additional six semester hours are required in the nonthesis environmental engineering curriculum.

Each student, with the approval of his or her advisor, develops a plan of study which satisfies special requirements of the curriculum chosen by the student.

All candidates for the degree are expected to have a minimum grade-point average near 3.0 and required to 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 as to semester hours of coursework vary somewhat among the various areas of specialization. The candidate will normally 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 which 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 one of the University of Iowa graduate programs in engineering.

All doctoral students are required to pass a written and oral comprehensive examination prior to formal admission to candidacy for the degree. This examination is normally taken when substantially all of the student's coursework has been completed.

A final examination, in which the candidate must successfully defend his or her dissertation, completes the program.

Doctoral candidates are expected to maintain a grade-point average of 3.2 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" section in "Liberal Arts").

Special Faculty Strengths

The American Council on Education's most recent ranking of civil engineering departments offering graduate studies placed the University of Iowa programs in Civil Engineering in the top 40 of the more than 200 in the nation.

Admission

Each curriculum of the program is quite flexible, and students may be admitted from all disciplines of engineering as well as the mathematical and basic sciences. An applicant for the master's degree program is expected to have a cumulative undergraduate grade-point average of 2.5 (A=4); usually, 3.0 is expected. 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.
Undergraduate Program

The undergraduate program leads to a Bachelor of Science degree in electrical engineering, with a strong emphasis on computer engineering. The curriculum entails with electronics, instrumentation, control and communications systems and computers. Electrical engineers are employed in semiconductors, aircraft, radio, television, computer and power industries. With the B.S. degree, the electrical engineer is prepared to do engineering work in design, development, manufacturing, testing, market analysis, operation, field service and management. The employment outlook for the foreseeable future is quite favorable.

To prepare the student for the electrical engineering profession, the curriculum provides a strong background in circuits, computers, control systems, electromagnetics, communication theory, electronics and design. In addition to the basic engineering core of mathematics, engineering design, engineering science and humanities, Technical electives and advanced programs are offered in biomedical systems, computer systems, electronic circuits, signal processing, digital and control systems, applied physics, power and solid state devices.

Culumbus

Sophomore Year

First Semester

561:10 Dynamics 3 s.h.
228:537 Engineering Calculus III 4 s.h.
520:16 Thermodynamics I 4 s.h.
560:13 Linear Algebra 3 s.h.
540:11 Dynamic Systems Analysis 3 s.h.
Total 17 s.h.

Second Semester

228:538 Differential Equations and Linear Algebra 4 s.h.
540:25 Electromagnetic Theory 4 s.h.
540:92 Digital and Computer Systems 3 s.h.
540:12 Dynamic Systems Analysis II 3 s.h.
Sociocultural elective 3 s.h.
Total 17 s.h.

Junior Year

First Semester

29:50 Physics I 3 s.h.
590:09 Probability and Statistics for Engineering and Physical Sciences 3 s.h.
545:60 Principles of Electrical Engineering Design I 3 s.h.
545:40 Electronic Circuits I 3 s.h.
545:60 Communication Systems 3 s.h.
*545:91 Professional Seminar 0 s.h.
Total 15 s.h.

Second Semester

29:83 Physics II 3 s.h.
545:61 Principles of Electrical Engineering Design II 3 s.h.
545:41 Electronic Circuits II 3 s.h.
545:60 Control Systems 3 s.h.
*545:91 Professional Seminar 0 s.h.
Sociocultural elective 4 s.h.
Total 15 s.h.

Senior Year

First Semester

545:70 Electrical Engineering Materials and Devices 3 s.h.
545:82 Principles of Electrical Engineering Design II 3 s.h.
*545:91 Professional Seminar 0 s.h.
**Science core elective 3 s.h.
Sociocultural elective 3 s.h.
Technical elective 4 s.h.
Total 16 s.h.

Second Semester

545:83 Principles of Electrical Engineering Design IV 3 s.h.
*545:91 Professional Seminar 0 s.h.
Sociocultural elective 3 s.h.
Technical elective 4 s.h.
Total 15 s.h.

*Professional seminar must be taken at least once in the junior and once in the senior year.
**Science core electives:
520:30 Mechanics of Fluids and Transfer Processes 4 s.h.
520:19 Mechanics of Deformable Bodies 3 s.h.
580:37 Engineering Management Science 3 s.h.
Biological science course

Graduate Program

The Electrical and Computer Engineering Program offers courses leading to the Master of Science and Doctor of Philosophy degrees. Thesis and nonthesis M.S. programs are available, and either may provide Ph.D. study. Excellence in scholarship and research is stimulated through close contact with the faculty throughout the period of graduate study and through programs tailored to fit individual needs. Each graduate student is regarded as an important member of the program whose contributions are highly valued.

Each student selects his or her own advisor, and, with the advisor, plans an individual program, with freedom of choice bounded only by the broad guidelines imposed by the Graduate College and by the program. Foreign languages and research tools, for example, are not required by the Graduate College or by the program, but are introduced into the program by the student and adviser to the extent that they are appropriate in light of the particular student’s goals.

The program recognizes the student’s desire to complete degree requirements as promptly as possible without sacrifice of quality, and encourages the student to proceed toward graduation as rapidly as possible.

The basic program, which is fundamental to electrical and computer engineering, has a wide application, and this has resulted in
interdisciplinary research in areas such as biomedical engineering, computer systems, and applied mathematics. Graduate students are encouraged to take courses in several interdisciplinary areas. Opportunities are available for the graduate student to choose his or her own interests and participate in a creative effort. Well-established and funded research laboratories exist in the following areas:

Applied Physics

Plasma physics and electron-optic investigations of plasmas in specialized laboratories in both the Engineering Building and Physical Research Building. Typical projects involve nonlinear wave interactions, plasma instabilities, laser optics, and acoustic wave behavior.

Applications to Biology and Medicine

Computer-assisted electrophysiology, heart arrhythmia analysis, drug infusion, and other medically related computer investigations utilize another laboratory with its own real-time computer system. These projects involve close collaboration with colleagues in the College of Medicine.

Control Systems

in cooperation with outside agencies, several projects applying modern control theory are in progress. These include stability considerations, time delay, and digital implementation. In the control laboratory, investigation of real-time digital control, nonlinear system theory, and digital estimation utilize mini- and micro-computers.

Computer Systems

Fault-tolerant subsystem design and reliable systems programming are typical project areas. Other topics include data security, data communications, networks, and self-checking systems.

In cooperation with nearby industry, the program also offers off-campus courses in electrical and computer engineering.

Master of Science

Thesis and nonthesis programs are available. The degree requires at least 30 semester hours of credit in an approved, coherent program acceptable to the adviser and the graduate committee. This must include at least 12 semester hours of coursework in electrical engineering, not including courses required for the equivalent engineering undergraduates, and at least nine semester hours of coursework outside of electrical engineering, ordinarily from mathematics and physics.

With thesis, up to eight semester hours of the 30 semester hours may be research credit.

Without thesis, at least 3 semester hours of 547/198 Individual Investigations are required. In addition to the 12 semester hours in electrical engineering, this independent study is to be a senior project completed under the supervision of the student's program adviser.

The candidate for the master's degree in electrical engineering must also successfully complete a final examination which is conducted by a committee of at least three faculty members, of which the adviser is chair. One part of the final examination must consist of an oral defense of the thesis, for theses candidates, or of the materials in 547/198 Individual Investigations, for nonthesis candidates.

Doctor of Philosophy

Requirements other than those stated in the University's graduate manual may:

Selection of a program adviser and fitting of a tentative plan of study with the Program during the first year.

At least 72 semester hours of credit in a coherent program acceptable to the adviser and approved by the graduate committee, with at least 45 semester hours of required credit earned in normal courses, including 30 semester hours in courses numbered 547/198.

Successful completion of the Ph.D. qualifying exam(s);

Successful completion of the Ph.D. comprehensive examination;

Successful completion of a research program; and

Successful completion of a final oral defense of the thesis.

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.

Admission Requirements

The normal graduate admission requirement of the program is at least a 2.7 grade-point average on all courses in electrical engineering, mathematics and physics for M.S. students, 3.0 for Ph.D. students. An M.S. student with a grade-point average less than 2.7 but better than 2.5 on courses in electrical engineering, mathematics and physics, may be accepted on probation. Students with baccalaureate degrees in related areas (e.g., physics, mathematics and computer science) may be admitted. In such cases, additional coursework without graduate credit may be required.

Each application is reviewed on an individual basis. Extenuating circumstances may permit deviations from the normal standards.

Engineering

Program Faculty: George M. Loew, Chairman; J. Wayne de Neef, Director; Tuan T. Truong, Raymond L. LePage, and James E. McCready, Associate Professor; James Andrews

Degree offered: B.S.

The increasing emphasis on interdisciplinary and multidisciplinary careers in modern engineering has led to a need for engineers who are capable of working in a variety of fields and who are familiar with the latest developments in both the traditional engineering disciplines and the rapidly evolving fields of computer science, mathematics, and physics. The program in electrical engineering is designed to provide students with a solid foundation in the principles of electrical engineering and to prepare them for careers in industry, government, or teaching. Students who complete the program are well-prepared for a wide range of careers in the electrical engineering field, including positions in research and development, design, and manufacturing. The program is structured to allow for specialization in areas such as power systems, telecommunications, and computer engineering, and students have the opportunity to pursue coursework in these areas, as well as in other areas of interest.

In addition to the regular coursework, students have the opportunity to engage in research projects and to work on real-world problems. The program also includes a strong emphasis on communications and teamwork, with students working in small teams on projects that require collaboration and effective communication. The program is designed to prepare students for successful careers in the field of electrical engineering, and it is highly respected by employers in the industry. Graduates of the program have gone on to successful careers in a variety of industries, including telecommunications, power systems, and computer engineering, among others. The program is open to students who have a strong background in mathematics and science, and it is highly recommended for those who are interested in pursuing a career in electrical engineering.
between breadth and depth must be
maintained in order to fulfill the
well-rounded education. To accomplish
this, the curriculum contains a strong base of
engineering core courses with the remainder of
the program consisting of a guided elective
sequence. The specific portion of
the program contains sufficient breadth and
depth in fundamentals to guarantee an
excellent background in engineering
fundamentals.
The major portion of the elective program is
scheduled for the final three semesters and
builds from background acquired in the
engineering core courses. This elective
sequence is planned in consultation with an
advisor to achieve a coordinated program
which satisfies the specific objectives of
the student. The sequence is selected not later
than the fifth semester of study and must be
approved by the Program Review Commit-
tee (PRC). The PRC is also responsible for
monitoring the progress of all students in the
program and offering suggestions and
advice as required.

Curriculum
Sophomore Year
First Semester
580:21 Principles of Design I 5 s.h.
580:22 Principles of Design II 5 s.h.
Total 10 s.h.
Second Semester
580:23 Principles of Design III 5 s.h.
580:24 Principles of Design IV 5 s.h.
Total 10 s.h.

Junior Year
First Semester
580:23 Principles of Design III 5 s.h.
580:24 Principles of Design IV 5 s.h.
Total 10 s.h.
Second Semester
580:25 Principles of Design V 5 s.h.
580:26 Principles of Design VI 5 s.h.
Total 10 s.h.

Senior Year
First Semester
Design course 3 s.h.
Technical electives 12 s.h.
Socio-humanistic elective 3 s.h.
Total 18 s.h.
Second Semester
Design course 3 s.h.
Technical electives 9 s.h.
Socio-humanistic elective 3 s.h.
Total 15 s.h.
Socio-humanistic elective courses must be selected to satisfy the College of Engineering policy.

Industrial and Management Engineering
Program emph.: 1. Linear Algebra
2. Probability and Statistics for
Engineering and Physical
Science
3. Thermodynamics I
4. Fluid Mechanics and
Transfer Processes

Undergraduate Program
The undergraduate curriculum in industrial engineering requires a strong foundation of
courses in management and engineering, science, mathematics, design, social sci-
ences and humanities. Advanced courses include specialty courses in manufacturing,
operations research, statistics, systems engineering, and digital computation. An
undergraduate handbook, describing the program in greater detail, is available upon
request.

Curriculum
Sophomore Year
First Semester
580:15 Materials Science I 3 s.h.
580:27 Engineering Management
Science 3 s.h.
Total 6 s.h.
Second Semester
580:16 Materials Science II 3 s.h.
580:47 Dynamic Systems Analysis I 3 s.h.
580:10 Dynamics 3 s.h.
Total 9 s.h.

First Semester
Principles of Design I 3 s.h.
Socio-humanistic elective 3 s.h.
Total 6 s.h.
Second Semester
Principles of Design II 3 s.h.
Socio-humanistic elective 3 s.h.
Total 6 s.h.

Came in general, the industrial and management
engineer is concerned with the analysis,
design and implementation of systems
involving the optimal use of resources—
human, material 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 and systems analysis and design
methods. Both undergraduate and graduate
programs in Industrial and Management
Engineering are designed to provide courses
in these areas, while at the same time,
ofering the student an opportunity to
specialize in an area of his choice.

First Semester
Design course 3 s.h.
Technical electives 12 s.h.
Socio-humanistic elective 3 s.h.
Total 18 s.h.
Second Semester
Design course 3 s.h.
Technical electives 9 s.h.
Socio-humanistic elective 3 s.h.
Total 15 s.h.

First Semester
Principles of Design I 3 s.h.
Socio-humanistic elective 3 s.h.
Total 6 s.h.
Second Semester
Principles of Design II 3 s.h.
Socio-humanistic elective 3 s.h.
Total 6 s.h.
Juniur Year

First Semester

556:71 Materials Processing I 3 s.h.
556:140 Quantitative Methods 3 s.h.
556:30 Probability and Statistics for Engineering and Physical Sciences 3 s.h.
540:21 Principles of Design I 3 s.h.
540:25 Electromagnetic Theory 4 s.h.
556:91 Professional Seminar 0 s.h.
Total 16 s.h.

Second Semester

29:22 Physical I 3 s.h.
561:141 Introduction to Operations Research 3 s.h.
**13:11 Elementary Psychology 4 s.h.
556:22 Principles of Design II 3 s.h.
*Historical-cultural elective 3 s.h.
556:91 Professional Seminar 1 s.h.
Total 17 s.h.

Senior Year

First Semester

556:129 Information Systems Design 3 s.h.
**13:11B Psychology in Management 3 s.h.
556:121 Design of Work Methods 4 s.h.
**Science core elective 3 s.h.
***Technical elective 4 s.h.
556:91 Professional Seminar 0 s.h.
Total 17 s.h.

Second Semester

**13:11B Human Engineering 3 s.h.
556:133 Quality Control, Reliability and Engineering Statistics 3 s.h.
***Technical elective 6 s.h.
*Historical-cultural elective (100-level) 3 s.h.
556:91 Professional/Seminar 1 s.h.
Total 16 s.h.

*The science core elective may be selected from:
29:22 Physics II 3 s.h.
561:19 Mechanics of Deformable Bodies 3 s.h.
529:30 Mechanics of Fluids and Transfer Processes 4 s.h.
A biological science course 3 s.h.
The economics elective may be selected from:
68:140 Price, Employment and Production Theory 4 s.h.
68:173 Managerial Economics 3 s.h.
66:100 Macroeconomics 3 s.h.
66:111 Labor-Monopoly Economics 3 s.h.

**Strongly recommended social science electives.
**courses satisfying technical elective requirements include:
587:101 Communication in Industry 3 s.h.
596:124 Operations Systems Design 3 s.h.
556:125 Engineering Administration 3 s.h.
556:142 Production Inventory Models 3 s.h.
556:152 Quantitative Investment Analysis 3 s.h.
586:147 Sequencing and Scheduling 3 s.h.
556:148 Digital Systems Simulation 3 s.h.
556:152 Advanced Managerial Psychology 2 s.h.

Graduate Program

The goal of the industrial and Management Engineering graduate program at both the M.S. and Ph.D. levels is to provide a modern, highly flexible curriculum of graduate studies. Each student's course of study will be based on his background, career objective, and sound academic practice. Program students have research interests in areas related to engineering design and human factors: operations research, computing, and engineering statistics; materials processing and transportation.

Student programs emphasize operations research or engineering management, and human factors may be developed from Division of Systems Engineering course offerings in the departments of Industrial and Management Engineering. Faculty members M.S. students desiring a more general program may combine these emphasize at the M.S. level, while those desiring some specialization in engineering statistics, computing, or materials processing may accommodate these preferences through the combination of Industrial and Management Engineering program courses and appropriate electives from other programs.

Graduate students with special interest in law or transportation may participate in programs which are jointly administered with the College of Law and Program in Urban Transportation. A graduate handbook, describing the program in greater detail, is available upon request.

Master of Science Degree

Students may be admitted to accredited undergraduate curricula in any engineering discipline and the mathematical or physical sciences with a minimum grade-point average of 2.00 or an acceptable score on the Graduate Record Examination (typically, at least 450 Verbal, 650 Quantitative). Students may be considered for conditional admission with a 2.30 grade-point average and lower GRE scores. Students from business or social science programs who have adequate mathematical preparation may also be considered for regular or conditional admission. The student on conditional status must achieve regular status within two sessions of registration by attaining a grade-point average of at least 2.75 and acceptable performance by the Industrial and Management Engineering program faculty or be dismissed.

The minimum M.S. program requires 30 semester hours of coursework and research. The program requirements are designed to provide a basis for a thesis or non-thesis degree. Students may choose either a thesis or non-thesis program, although research experience may be required to write an M.S. thesis as a condition of their support. All students, however, are encouraged to obtain the master's degree with a thesis. Students desiring additional emphasis in Ph.D. study are especially advised to select the thesis option. A tentative plan of study for each student is determined through consultation with the advisor; the final plan of study is reviewed by the student's examining committee, approved by the Industrial and Management Engineering program chair, and by the Graduate College dean.

Entering students in all programs will find some background in computer programming and probability and statistics helpful. Engineering management and human factors students will find elementary psychology and introductory economics useful preparation. Computer science courses may be required for students with no engineering backgrounds.

To be eligible for the M.S. degree, the student is required to maintain a grade-point average of 2.75 on a minimum of 30 semester hours of graduate credit.
50 semester hours of graduate work. The nature of the final examination will be specified by the examining committee if it may be comprised of both written and oral parts. The examination will expect further the student’s grasp of the mathematical and physical sciences and a minimum grade-point average of 3.00 and an actuarial score on the Graduate Record Examination (typically, at least 560 Verbal, 700 Quantitative). Students may also be admitted by business or social science programs on an individual basis. Students with a Ph.D. objective and a B.S. degree are usually first admitted to the M.S. program.

All doctoral programs in the Graduate College must contain a minimum of 72 semester hours of graduate work and include at least two semesters of residence. Typically, Ph.D. programs in Industrial and Management Engineering contain at least 90 hours of study including research for the dissertation. Part-time Ph.D. study is discouraged. There is no foreign language requirement.

Admission to Ph.D. candidacy will require a minimum grade-point average of 3.55 on all graduate courses taken in the University of Illinois and the demonstration of capacity for individual achievement. Upon completion of the coursework specified by the adviser and examining committee with the GPA stipulated above, and upon recommendation by the adviser, the student will be admitted to the comprehensive examination. During this examination, which includes both written and oral parts, the student will be examined over the advanced coursework in his/her program. Part of this examination will usually include the presentation of a dissertation proposal so that the comprehensive committee can evaluate the student’s academic preparation in the light of the research to be performed.

Having satisfactorily completed this examination, the student is accepted as a candidate for the Ph.D. and normally has only the complete and defend his/her dissertation.

Extension and Guided Self-Study

In cooperation with the Expedition Division, program faculty will periodically offer extension classes in Corvallis, Duluthia, or the Quail Cities. The program chair should be consulted for offerings in any semester. Program faculty also offer a limited guided self-study program for off-campus students.

Financial Aid

Financial support is available primarily through research and teaching assistantships. Awards are based on the student’s academic record and upon an assessment of the student’s potential contribution to the research and teaching goals of the program.

Mechanical Engineering

Program chair: W. Steven C. Fertel
Assistant professors: Lee R. Downes, Ray Cheng, Hung Young Huang
Adjunct assistant professor: Henry H. Hwang
Adjunct assistant professor: Henry H. Hwang

In addition to providing the student with a sound preparation for entering the practice of mechanical engineering, an effort is made to provide for breadth in both technical and non-technical areas. This is done by careful planning for each student’s elective courses and by encouraging individual student projects. Areas of concentration offered for graduate study and research include thermodynamics, energy, mechanical systems, fluid transfer, gas dynamics, solid mechanics, and the promising interdisciplinary areas of biomechanics and optimal design.

Undergraduate Program

The undergraduate program in mechanical engineering provides 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 hydraulic systems. The undergraduate curriculum provides a substantial number of electives in both the technical and non-technical areas. In consultation with his or her adviser, a student can plan to develop capabilities to meet individual goals within the framework of the curriculum. All upperclassmen are strongly encouraged to undertake individual projects involving either an experimental or analytical design solution to a current problem.
Graduate Program

Graduate programs leading to the Master of Science degree, both with and without thesis, and to the Doctor of Philosophy degree are available to qualified students. General degree requirements are specified in the "Graduate College" section of this Catalog.

Areas of concentration for graduate study include solar energy, heat transfer, thermodynamics, gas dynamics, solid mechanics, biomechanics, optimal design, and mechanical systems design. Flexibility to meet individual needs is accessible within the framework of program requirements. The student and advisor plan a program of study, and the advisor also serves as the research and thesis supervisor.

The Program of Mechanical Engineering cooperates in interdisciplinary doctoral programs, particularly the program in Applied Mathematical Sciences.

Master of Science

The Master of Science degree requires a minimum of 30 semester hours of academic credits, including not more than eight semester hours of thesis work, if the thesis option is chosen. About half of the hours are specified, depending upon the area of concentration and about half the hours are selected by the students in consultation with his or her advisor.

Candidates for the degree are expected to maintain at least a 3.0 grade-point average, in addition to passing the required examinations. Students not writing theses will take both written and oral examinations; students writing theses will place emphasis on the thesis in the required examinations.

Doctor of Philosophy

The Doctor of Philosophy degree is granted on the basis of achievement rather than on the accumulation of semester hours of credit. However, the student is normally expected to earn approximately 30 semester hours beyond the M.S. degree. About 25 semester hours are devoted to the dissertation and about 15 semester hours are devoted to mathematics or closely related areas. This leaves about 20 semester hours of major courses to be taken in the Program. This latter group will be chosen in consultation with the advisor and with consideration of the student's choice of specialty.

Doctoral candidates are expected to maintain a 3.50 grade-point average throughout their doctoral program.

Ph.D. students may be required to have one year of study of a foreign language. For this requirement, each student's program and schedule of language requirements will be made by the student's advisor. Students from non-English-speaking countries may use their native language as well as their required competency in English to meet this requirement.

During research for and writing of their dissertation, students work closely with their Ph.D. supervisor who usually is their Ph.D. advisor. The Ph.D. comprehensive examination will be taken prior to the student's last term of registration. The final examination, which is oral, is on the dissertation, culminates the program.

Financial Aid

There is a considerable amount of support available for graduate students. A significant volume of research work relies on selecting graduate students as research assistants. Also, some graduate students are employed as teaching assistants.

Admission

In addition to minimum requirements of the Graduate College, applicants for admission to a graduate program in mechanical engineering are expected to rank in the upper quarter of their college undergraduate classes.

Although graduate students in mechanical engineering will ordinarily have a baccalaureate degree in mechanical engineering or a closely related field, science and mathematics students who are interested in interdisciplinary programs will be admitted, if a careful review of their qualifications and objectives finds them suitable.

Division of Energy Engineering

Chair: Yvonne C. Paik
Advisors: John P. Bar, Barry C. Ferris, Keith R. Long

Carroll Professor emeritus and dean emeritus: Hunter Rose

Professor emeritus: Joseph W. How.

Faculty members: Cheryl F. Chen Tun, Thomas E. Cook, John P. Bart, Francis E. Frenkel, Barry C. Ferris, John P. Bart, Thomas E. Cook, David L. Snyder

Adjunct professors: R. Narayanan

Assistant professors: John P. Frenkel, John J. Koelm, Mustapha, Jennifer J. Beale

Adjunct assistant professor: Fred T. Schaefer

Adjunct professor: Arthur G. Gifford

Tutored helper: A. Jacob Oliger

The responsibilities of the Division of Energy Engineering include the development and teaching of courses at all levels, development and maintenance of teaching and research laboratories and conduct of basic and applied research in the disciplinary fields of mechanical sciences and energy sciences. The Division's mission is to maintain excellence in its teaching and scholarly activities, while remaining responsive to the changing engineering needs of industry and to its demands upon the engineering profession.

The applications of this fundamental engineering principles in biological, chemical, civil, electrical, and thermal sciences to the design of engineering components and projects is thus the production, distribution, and utilization of water, energy, and materials, in the protection of the environment and to the ever-increasing interaction between engineering and health sciences are conveyed.
to the undergraduate student through a series of integrated courses at various levels. In addition to serving students in all engineering curricula through the core program, the Division offers specialized courses for students majoring in biomedical, chemical, civil and mechanical engineering, and campus-wide general course highlighting the complex interaction between engineering and other fields of learning in dealing with the problems of energy and environment.

At the graduate level, the Division offers courses in thermalsciences and transport phenomena, environmental sciences, fluid mechanics, hydraulics, and earthquake and geotechnical engineering, and campuswide general course highlighting the complex interaction between engineering and other fields of learning in dealing with the problems of energy and environment.

The graduate level, the Division offers courses in thermalsciences and transport phenomena, environmental sciences, fluid mechanics, hydraulics, and earthquake and geotechnical engineering, and campuswide general course highlighting the complex interaction between engineering and other fields of learning in dealing with the problems of energy and environment.

Active Research Projects

Fluid Mechanics: Dispersion and etion of passive and reactive contaminants in rivers and lakes; experimental and theoretical studies of turbulent boundary layers, waves, jets and plumes; unsteady turbulent and transitional flows, analysis of numerical solutions of problems of ship hydromechanics; physiological flow phenomena in cardiovascular and intestinal systems; wind loads on structures; detection and removal of ice at sea.

Hydraulic Engineering: Design, modeling and on-line testing of intakes and outfall structures; river management; thermal discharges into natural water bodies; cooling tower performance; sediment transport; formation of ice covers and ice jams; strength of ice; ice forces on structures.

Instrumentation: Laser and hot-wire anemometry; measurement of sediment and very-low-speed velocities; real-time acquisition and processing of data.

Thermal Sciences: Biological heat transfer; dynamics of aerocoupled suspensions; radiant heat transfer through real plates; radiative properties of rough surfaces; remote heat-flux measurement; design, performance and heat transfer studies of water-energy collectors and thermal storage systems; aerodynamic heating; plasma nonequilibrium; power-plant cooling system; systems economics of power production.

Water Quality: Mathematical modeling of water quality in streams and lakes; optimal allocation of resources to control water pollution; removal of trace gases in water treatment; kinetics of nitrification in wastewater; sludge stabilization in wastewater treatment; disposal of sludge from wastewater treatment; and anoxic treatment of cyanide gas scrubber wastes; biological reduction for the removal of effluents from ground water; arsenic treatment of high-strength thermal sludge conditioning wastes; pilot scale evaluation of micro-screening for sludge dewatering.

Water Resources: Economics of water usage; management of reservoirs; stochastic, hydrologic, systems analysis; watershed modeling; water utilization by waste heat management.

Special Facilities

The laboratory for undergraduate instruction in fluid and thermal sciences is located in the Engineering Building and contains a small wind tunnel, a water table, various air, water, and oil flow devices, and facilities for numerous small-scale experiments which demonstrate the principles of mass, momentum, and energy transfer. More specialized experiments are also performed in the other laboratories of the Division and in the facilities of the U.W. Institute of Hydraulic Research. The laboratories are located in the University Water Plant and the P.R. Morphil Sanitary Engineering Laboratory.

Since most members of the senior research staff of the Institute of Hydraulic Research held professional appointments in the Division of Energy Engineering, the teaching and research functions of the Division are closely connected with the research and consulting activities of the Institute. This is particularly so in the areas of fluid mechanics, hydraulics, and the laboratory, water resources and those aspects of thermal sciences related to irrigation and dispersal of waste heat in water.

The Institute houses some of the most modern research facilities in the world. The equipment includes a 330-ton swing tank, several hydraulic furnaces and wind tunnels, a dispersion furnace, a wave tank, and special

low-temperature low-fert facility for investigation of flow phenomena, and an environmental hydrogenic furnace for modeling of atmospheric flows. A new ice flow tunnel is under construction. The Institute is also equipped with computer-based data acquisition and control system for on-line recording, storage and processing of experimental data gathered at various points in the laboratory.

Research in environmental sciences and engineering is conducted in the Division's laboratories located at the Philip F. Verigin Sanitary Engineering Research Laboratory, situated on the site of the Iowa City Municipal Wastewater Treatment Plant, and in the Water Plant Laboratory, located in the University Water Treatment Plant. The Morgan Laboratory is devoted to research activities in the wastewater treatment area, it includes a modern wastewater treatment plant, a chlorination plant, a sludge digestion plant, a pilot plant, and a research and testing laboratory.

The Water Plant Laboratory is the center of research in the water treatment and natural aquatic systems area. The laboratory is fully equipped for both routine and advanced chemical and biological analysis of water and provides space for both bench and pilot scale operations. The University Water Plant, a 750,000-cu-ft-per-day waste water plant is especially designed to allow the isolation of wastewater operations for special study without undue interference with the production and supply of treated water to the University. The Iowa River, which flows through the University Campus, and the Coralville Reservoir, located approximately 5 miles upstream, serve as natural laboratories for water quality and limnology research.

Facilities for research in thermal sciences consist of a solar collector test stand with provision for simultaneous evaluation of several collectors, a solar thermal storage test stand, and a salt and air condenser test stand.

The laboratory, a stainless steel, flat reflector for radiant property measurement through surfaces, an interferometric holography laboratory and a visible flow loop under development. The laboratories are serves by a minicomputer-
Financial Aid
Since the Division's faculty is engaged in a wide variety of sponsored research projects, a majority of the 75 graduate students working with the professors in the Division receive research assistantships. Of these, the Institute of Hydraulic Research employs some 30 to 35 graduate students half-time to work on projects in fluid mechanics, hydraulic engineering, water quality and water resources. The Division of Energy Engineering offers similar assistantships for student participation in research projects in the thermal and aquatic environments. A limited number of fellowships and teaching assistantships are also available from the Division. Graduate students receiving financial support from the Division are required to register for at least nine semester hour courses each semester.

The Division of Energy Engineering also encourages undergraduate involvement in its research through the University Work Study Program and the Undergraduate Research Participation Program.

Courses
Core Engineering Program Courses
526:13 Thermodynamics I 4 s.h.
530:12 Fluid Mechanics I
530:32 Mechanical Engineering Design I 3 s.h.
528:12 Fluid Engineering 4 s.h.
529:12 Advanced Engineering Analysis 4 s.h.

General Courses
572:17 Energy in Contemporary Society 3 s.h.
572:18 Environmental Impact Assessment 3 s.h.
572:19 Water and Wastewater Treatment 3 s.h.
572:20 Technology and the Environment 3 s.h.
572:21 Materials and Environmental Impact Assessment 3 s.h.
572:22 Energy and the Environment 3 s.h.
572:23 Energy and the Environment 3 s.h.
572:24 Advanced Energy Analysis 3 s.h.

Thermal Sciences and Transport Phenomena
572:40 Thermodynamics II 3 s.h.
572:41 Thermodynamics II 3 s.h.
572:42 Energy and the Environment 3 s.h.
572:43 Advanced Energy Analysis 3 s.h.
572:44 Energy and the Environment 3 s.h.
572:45 Energy and the Environment 3 s.h.
572:46 Energy and the Environment 3 s.h.
572:47 Energy and the Environment 3 s.h.
572:48 Energy and the Environment 3 s.h.
572:49 Energy and the Environment 3 s.h.
572:50 Energy and the Environment 3 s.h.
572:51 Energy and the Environment 3 s.h.
310 ENGINEERING/Division of Energy Engineering

S23-14: Solar Engineering

2-5.a. Solar radiation, energy transfer and at the earth's surface:
- Numerical and analytical solution techniques,
  material properties, and climate feedbacks,
  energy storage, and systems designs.
Preparation: S23-14 or consent of instructor.

S23-10: Kinetics of Glassy State

2-5.a. Fundamental treatment of kinetic theory of glass,
  topics include lattice collisions; Boltzmann equation,
  H-theorem; equilibria of fluid mechanics; special solution techniques.
Preparation: S23-14 or equivalent.

S23-14: Necessities Thermodynamics

2-5.a. Necessity treatment of thermodynamic phenomena,
  thermal internal, statistical, and molecular view.
  Thermodynamic function of irreversible processes.
  Statistical mechanics for at least two bodies.

S23-18: High Temperature

2-5.a. Applications of high temperature and high pressure to
  advanced materials. Thermal conductivity, steady-state and
  transient heat conduction, heat transfer with moving boundaries.
  Analytical and numerical treatment of practical problems.
Preparation: S23-18 or equivalent.

S23-19: Convective Heat Transfer

2-5.a. Fundamentals of convective heat transfer: analysis of
  forced and free convection, differential and integral
  formułations of boundary layer, mass and temperature
  transfer in laminar and turbulent flows. Natural convection
  in gases and liquids. Preparation: S23-18 or equivalent.

S23-42: Radiative Heat Transfer

2-5.a. Fundamentals of radiant energy transport and analysis of
  radiative heat transfer, with a surface boundary.
  Preparation: S23-18 or equivalent.

S23-15: Environmental Sciences

2.5. Principles of Environmental

2-5.a. Physical, chemical and biological principles of water
  and waste pollution, pollution control, and
  management, planning or graduate standing in
  engineering.
Preparation: S23-15 or consent of instructor.

S23-11: Hydraulic Systems Design

2-5.a. Application of principles to the design of
  hydraulic systems. Environmental engineering
  with emphasis on water and waste treatment.
Preparation: S23-18 or equivalent.

S23-12: Environmental Chemistry

2-5.a. Principles of general, organic, and physical
  chemistry systems. Preparation: S23-18 or
  equivalent.
Preparation: S23-18 or equivalent.

S23-43: Environmental Chemistry Laboratory

2-5.a. Laboratory techniques in the routine procedures, chemical
  and biological analysis of water, wastewater and soils.
  Preparation: S23-18 or equivalent.

S23-15: Environmental Microbiology

2-5.a. Fundamentals of microbiology with applications to water

S23-16: Environmental Chemistry

2-5.a. Physical and chemical characteristics of natural

S23-18: Environmental Operations and

2.5.a. Theory of physical, chemical and biological operations
  and processes in water and wastewater treatment.

S23-21: Environmental Engineering Design

2-5.a. Preparation and evaluation of design and operation of

S23-22: Air Pollution

2-5.a. Sources, characterization and abatement by pollutants,
  atmospheric and environmental effects. Preparation:
  S23-18 or equivalent.

S23-19: Advanced Environmental Systems

2-5.a. Advanced Environmental Systems Design

2-5.a. Physical, chemical and biological aspects of natural
  and waste waters and the effects of pollutants
  discharge on water quality. Preparation: S23-18 or
  equivalent.

S23-19: Advanced Environmental Systems Modeling

2-5.a. Mathematical modeling of environmental processes,
  such as in aquifer systems, landscape and

S23-20: Advanced Environmental Chemistry

2-5.a. Lectures and laboratory testing with advanced concepts

S23-21: Advanced Environmental Technology

2-5.a. The nature, role and significance of risks in the
  environment and their interactions with the

S23-18: Industrial Water Quality Control

2-5.a. Quality, quality and treatment of industrial processes
  waters. Sources, characteristics and treatment of industrial
  wastewater in order to meet effluent standards and
  environmental requirements of local water and air agencies.

S23-22: Industrial Waste Control

2-5.a. Quality, quality and treatment of industrial processes
  waters. Sources, characteristics and treatment of industrial
  wastewater in order to meet effluent standards and
  environmental requirements of local water and air agencies.

S23-44: Fluid Mechanics

2-5.a. Flow Systems in Environmental Engineering

2-5.a. Application of the principles of hydraulics and hydrodynamics
  to the analysis and design of water and wastewater treatment

S23-14: Fluid Mechanics

2-5.a. Kinematics of fluid flow; definition of the equations of
  fluid motion; transfer, formation and energy

S23-25: Equations of Fluids

2-5.a. Bernoulli's equation, work and energy, viscosity, and

S23-16: Experimental Methods in Fluid Mechanics

2-5.a. Design and execution of several experiments, each
  evaluated in terms of what is required or perceived
  to be a special experiment and how the results
  obtained. Preparation: S23-16 or equivalent.
Preparation: S23-16.

S23-24: Fundamentals of Fluids

2-5.a. Fluid mechanics in compressible, incompressible, dynamic:
  basic mechanisms and energy methods; shock waves, turbulence,

S23-26: Navier-Stokes Equations

2-5.a. Basic principles in compressible fluid dynamics of a
  perfect gas. Analysis and shock waves, methods of
  characteristics and Cauchy problems, boundary layers, and

S23-27: Aerodynamics

2-5.a. Review of the aerodynamic principles and fluid mechanics,
  pressure, boundary layers, and flow control, work functions.
  Preparation: S23-27.

S23-28: Boundary Layer Theory

2-5.a. Fluid mechanics in compressible, incompressible, dynamic:
  basic mechanisms and energy methods; shock waves, turbulence,

S23-29: Fundamentals of Fluids

2-5.a. Fluid mechanics in compressible, incompressible, dynamic:
  basic mechanisms and energy methods; shock waves, turbulence,

S23-30: Fundamentals of Fluids

2-5.a. Fluid mechanics in compressible, incompressible, dynamic:
  basic mechanisms and energy methods; shock waves, turbulence,

S23-31: Fundamentals of Fluids

2-5.a. Fluid mechanics in compressible, incompressible, dynamic:
  basic mechanisms and energy methods; shock waves, turbulence,

S23-32: Fundamentals of Fluids

2-5.a. Fluid mechanics in compressible, incompressible, dynamic:
  basic mechanisms and energy methods; shock waves, turbulence,

S23-33: Fundamentals of Fluids

2-5.a. Fluid mechanics in compressible, incompressible, dynamic:
  basic mechanisms and energy methods; shock waves, turbulence,

S23-34: Fundamentals of Fluids

2-5.a. Fluid mechanics in compressible, incompressible, dynamic:
  basic mechanisms and energy methods; shock waves, turbulence,
  wave propagation, and wave mechanics. Preparation: S23-34.
328:164 Hydraulic Design 3.0 h
Classification and design of hydraulic structures; selection of type of dam; hydraulic design of reservoirs, spillways, gates, outlet works, canals and other hydraulic structures; hydraulic analysis of system. Prerequisites: 328:160. 328:169
328:165 Water Resources 3.0 h
Survey of water resources development. Study of water supply, waste disposal, and water pollution control. Prerequisite: 328:160. 328:169
328:219 Water Resources Seminar 0.5 h
Introduction to the professional aspects of the discipline of water resources engineering. Focus on discussions that use actual water resources development cases to present useful concepts. Each session will be limited to 10 students. Prerequisite: consent of instructor.
328:319 Fluid Mechanics and Hydraulics Seminar 0.5 h
Recent topics in fluid mechanics and hydraulics are presented and discussed by students, faculty, and visiting lecturers. Prerequisite: graduate standing.
328:321 Environmental Engineering Seminar 0.0 h
Discussions of research and social issues in environmental science and engineering by students, faculty, and guest lecturers. Prerequisite: senior or graduate standing.
328:321 Industrial Engineering Seminar 1.0 h
Recent topics in chemical engineering are presented and discussed by students, faculty and guest lecturers. Prerequisite: senior or graduate standing.
328:321 Environmental Engineering Seminar 1.0 h
Recent topics in chemical engineering are presented and discussed by students, faculty and guest lecturers. Prerequisite: senior or graduate standing.
328:321 Industrial Engineering Seminar 1.0 h
Recent topics in chemical engineering are presented and discussed by students, faculty and guest lecturers. Prerequisite: senior or graduate standing.
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328:321 Environmental Engineering Seminar 1.0 h
Recent topics in chemical engineering are presented and discussed by students, faculty and guest lecturers. Prerequisite: senior or graduate standing.
328:321 Industrial Engineering Seminar 1.0 h
Recent topics in chemical engineering are presented and discussed by students, faculty and guest lecturers. Prerequisite: senior or graduate standing.
The primary mission of the Division is the analytical and experimental study of material behavior, the development of physical and chemical properties, and the application of such data to the situation of interest.

The Division is responsible for developing and updating courses of instruction, associated laboratories, and graduate study in materials engineering within the Biomedical Engineering, Chemical and Materials Engineering, Civil and Environmental Engineering, and Mechanical Engineering programs. The disciplines associated with the programs are materials science and constitutive theory, structural analysis and design, foundations of chemical and transport processes, and mechanics and mechanical design.

The Division supports research activity for the faculty and students in the Division and assist in the recruitment of qualified graduate students. Research in the Division is one of diverse nature and encompasses the fields of experimentation in and mathematical representation of the mechanical behavior of materials at the phenomenological and molecular level. Basic study of transport processes with particular emphasis on mechanisms of diffusion and surface phenomena, modern optimization theories as they relate to the analysis and design of complex structural and mechanical systems, fracture of materials through deformation and basic understanding of the behavior of structures, application of the principles of continuum and theoretical mechanics to the design of prosthetic devices, study of the properties of grain media including powders, and the effect of particle size on properties and the improvement of methods of behavior of concrete and cementitious materials in the design of large structures.

Special Facilities

Biomechanics Laboratory

The laboratory is equipped for research in stress analysis and modeling associated with biomechanical systems. Included are a photoelastic bench with 12-inch transmission polariscope, photoelastic oven, fringe multiplier, contour projector, photo-stress meter, and recording equipment.

Chemical Engineering Laboratory

Located in the Chemistry-Biology Building, this laboratory includes pilot plant equipment for the study of industrial evaporation, distillation, drying, fluid flow and heat transfer. In addition, there are a subcritical reactor and facilities for bio-materials research and investigation of plastics and other materials. Laboratories for individual research by graduate students are equipped with chromatography, analog computers, and other instrumentation. A small shop is available for students to use under the supervision of a technician.

Electron Microscope Laboratory

This Instructional and Research facility is equipped with two RCA EMU-59 electron transmission microscopes and the necessary specimen preparation equipment to permit examination of specimens by the use of thin foil and replicates microscopy and selected area diffraction. This facility complements the existing facility involving the mechanical behavior of materials. The equipment includes a JEOL transmission electron microscope, a JEM-100 electron microscope, and a field emission scanning electron microscope. The facility also includes an electron microprobe for the analysis of materials, a scanning electron microscope for the analysis of materials, and a field emission scanning electron microscope for the analysis of materials.

Materials Testing Laboratory

This laboratory is equipped with the determination of physical and mechanical properties of materials of engineering interest such as metals, ceramics, and biomaterials. It includes a compression testing machine, an axial fatigue testing machine and a universal testing machine with mechanical and sophisticated multichannel electronic instrumentation for measuring deformation and stress. It also includes an MTS machine suitable for the investigation of fatigue properties of metals. An additional facility in the form of a random function generator for the study of fracture is being added. In addition, the laboratory contains a modern stress testing capability with a thermally controlled chamber for the study of deformation at high temperature. Pulse generator equipment has been acquired more recently for the dynamic response of materials in the high frequency range.

Mechanical Engineering Laboratories

The Mechanical Engineering Laboratories are equipped and instrumented to provide students with educational experience in a wide variety of fields of modern engineering fields of measurement and analysis, including computers, a variety of strain gauges, a photoelastic laboratory, and other conventional instrumentation. Particular areas include study of material behavior with emphasis on the mechanics of dynamic systems and mechanisms of failure under both static and cyclic loading.

Powders and Particulates Laboratory

This laboratory is generally equipped with x-ray instrumentation, chemical, optical, and physical properties of powders, various mixtures, grinders, x-ray equipment, optical microscope, sintheating furnace, mounting and polishing equipment. In addition, there is access to a scanning electron microscope Environmental scanning electron microscope, computer center, and specialized engineering and chemical inventory facilities and laboratories.

Structural Testing Laboratory

This laboratory is equipped for the determination of physical properties of
materials in engineering construction, such as soils, aggregates, concrete, metals, timber and plastics. Included are a compaction testing machine, a universal testing machine and an axial testing machine, along with mechanical and electronic instrumentation for the accurate measurement of deformations under load. The laboratory also contains a prestressing bed and frame which permits construction of prestressed concrete structural members. A soils laboratory contains consolidation and triaxial testing equipment of the latest design.

Divisional Financial Aid

Support is available for graduate students from several sources including assistantships, scholarships and federal grants. Stipends are comparable to those of other departments and academic units of the University and are granted on the basis of academic excellence and research interests of the Council. Graduate enrollment is approximately 60 students. Limited financial aid for undergraduates is available from assistantships and grants. These are in addition to the scholarships awarded by the University and the College of Engineering.

Courses

Core Engineering Program Courses

597: 1 Statics 2 a.h. Vector algebra, forces, couples, equivalent forces and free bodies, free-body diagrams of simple and static bodies.

597: 3 Dynamics 3 a.h. Newton’s laws, motion of particles, motion of rigid bodies, kinetics of particles, simple harmonic motion, circular motion, constrained systems, an introduction to the laws of motion, characteristics of mass, friction, and relative motion.

597: 10 Materials Science I 3 a.h. Foundation course in materials science to analyze the behavior between structures and properties of materials at atomic, molecular and macro levels. Prerequisite: 597: 1.


Special Program Courses

598: 86 Experimental Engineering 4 a.h. Principles of physical measurements, standards, calibration, emphasis of error, and dynamic performance of measuring systems; laboratory experiments; planning experiments. Prerequisite: prior standing. Same as 620: 86.

598: 92 Mechanical Engineering Design II 3 a.h. Primary emphasis on the development of a substantial design project. Contributes to 598: 92. Prerequisite: 598: 92. Prerequisite: prior standing.

598: 93 Mechanical Engineering Design I 3-4 a.h. Creative design projects which usually involve student teams. Current problems in industrial engineering. Projects are presented to faculty from industrial engineering science faculty committees. Prerequisite: 598: 91.

598: 94 Master’s Dissertation Engineering II 3-4 a.h. Continuation of 598: 93. Prerequisite: 598: 93 and senior standing.

General Courses

597: 1 Surveying 3 a.h. Theory of measurements, methods and computations, mapping, mapping surveying, photogrammetry, surveying and astronomy.


597: 112 Engineering Analysis 3 a.h. Introduction to numerical techniques important in engineering modeling, special functions, computer methods, numerical methods, integration techniques, numerical data processing, error estimation, optimal control systems. Prerequisite: senior standing. Same as 597: 110.


597: 21 Advanced Numerical Analysis 3 a.h. Partial differential and integral equations by finite difference methods, finite elements, variational and boundary conditions, difference equations, Fourier series, numerical methods, numerical analysis, error transfers, rounding errors, computer errors, and error propagation. Prerequisite: 597: 114. Prerequisite: 597: 211.


597: 31 Structural Analysis I 4 a.h. Analysis of stresses in beams, trusses and frames; influences of beams; deflection by classical methods; introduction to structural analysis by computer and by moment distribution. Prerequisite: 597: 19.

597: 32 Structural Analysis II 3 a.h. Concrete and prestressed concrete structures, design of steel and reinforced concrete beams, columns and connections. Prerequisite: 597: 30.


597: 35 Structural Design II 3 a.h. Prestressed concrete building and bridge design, steel and reinforced concrete bridge design, high rise building design, first-year analysis and design courses. Prerequisite: 597: 31.

597: 36 Prestressed Concrete Structures 3 a.h. Analysis and design of prestressed concrete and reinforced concrete members and structural systems, review of current standards and specifications. Prerequisite: 597: 35.


598: 23 Advanced Structural Analysis by Numerical Methods 3 a.h. Finite difference methods, relaxation anditerative methods, introduction to finite difference methods, and computer analysis and design of statically determinate and indeterminate systems and structures. Prerequisite: 597: 35.

598: 24 Advanced Structural Analysis by Numerical Methods 3 a.h. Finite difference methods, relaxation and iterative methods, introduction to finite difference methods, and computer analysis and design of statically determinate and indeterminate systems and structures. Prerequisite: 597: 35.

598: 25 Advanced Structural Analysis by Numerical Methods 3 a.h. Finite difference methods, relaxation and iterative methods, introduction to finite difference methods, and computer analysis and design of statically determinate and indeterminate systems and structures. Prerequisite: 597: 35.


599: 26 Advanced Structural Design V 3 a.h. Advanced and special analysis of structures, and design. Prerequisite: 597: 21.


599: 29 Advanced Structural Design VIII 3 a.h. Advanced and special analysis of structures, and design. Prerequisite: 597: 21.

599: 30 Advanced Structural Design IX 3 a.h. Advanced and special analysis of structures, and design. Prerequisite: 597: 21.

599: 31 Advanced Structural Design X 3 a.h. Advanced and special analysis of structures, and design. Prerequisite: 597: 21.


599: 36 Advanced Structural Design XV 3 a.h. Advanced and special analysis of structures, and design. Prerequisite: 597: 21.


Chemical and Transport Processes Courses

599: 41 Chemical Engineering Thermodynamics 3 a.h. Application of thermodynamic principles to chemical and physical processes, prediction of industrial properties of phase equilibria and mixed equilibria, application to mixture and reaction design systems. Prerequisite: 599: 32. Same as 599: 42.

599: 42 Process Calculations 3 a.h. Solution of industrial problems using material and energy
p.590: Block scheme and nonblock scheme are both ways to represent information flow in a system. The block scheme is more visual and easier to understand, while the nonblock scheme is more compact and efficient, especially for complex systems. Nonetheless, both approaches are important and should be used appropriately depending on the situation.

p.591: A hydraulic system is a network of interconnected components, such as pumps, valves, and pipelines, that work together to perform a specific task. In this case, the hydraulic system is used to control the flow of water in a irrigation system. The system is designed to ensure that water is distributed evenly and efficiently throughout the area.

p.592: A chemical process is a systematic approach to converting raw materials into a desired product. In this case, the process is designed to convert crude oil into a usable fuel. The process involves several steps, including distillation, cracking, and refining. The goal is to maximize the yield and quality of the product while minimizing waste and environmental impact.

p.593: A mechanical system is a network of interconnected components that work together to perform a specific task. In this case, the system is designed to lift heavy objects. The system involves several components, including a motor, a gear system, and a lifting mechanism. The goal is to ensure that the system is efficient, safe, and reliable.

p.594: A chemical engineering process is a systematic approach to converting raw materials into a desired product. In this case, the process is designed to produce a desired chemical product. The process involves several steps, including reaction, separation, and purification. The goal is to maximize the yield and quality of the product while minimizing waste and environmental impact.

p.595: A mechanical systems course is a systematic approach to understanding how mechanical systems work. In this case, the course covers topics such as statics, dynamics, and thermodynamics. The goal is to provide students with a solid foundation in mechanical systems theory and practice.

p.596: A chemical engineering course is a systematic approach to understanding how chemical systems work. In this case, the course covers topics such as chemistry, thermodynamics, and mass and energy transfer. The goal is to provide students with a solid foundation in chemical systems theory and practice.

p.597: A mechanical systems design is a systematic approach to designing mechanical systems. In this case, the design involves several steps, including conceptual design, detailed design, and testing. The goal is to design a system that is efficient, safe, and reliable.

p.598: A chemical engineering design is a systematic approach to designing chemical systems. In this case, the design involves several steps, including conceptual design, detailed design, and testing. The goal is to design a system that is efficient, safe, and reliable.

p.599: A mechanical systems analysis is a systematic approach to analyzing mechanical systems. In this case, the analysis involves several steps, including modeling, simulation, and optimization. The goal is to analyze the system and understand its behavior under different conditions.

p.600: A chemical engineering analysis is a systematic approach to analyzing chemical systems. In this case, the analysis involves several steps, including modeling, simulation, and optimization. The goal is to analyze the system and understand its behavior under different conditions.
Materials Phenomenology and Science Courses
502:70 Materials Science II 2 s.h.
To help the student appreciate that materials can be designed to achieve a wide range of unanticipated physical and mechanical properties. Prerequisites: 502:67.

502:71 Materials Processing I 3 s.h.
Processing of industrially important materials by casting, welding, machining, forming, injection molding, and extrusion. Discussion of the processes involved in manufacturing and assessing the properties of engineered materials. Prerequisites: 502:70.

502:72 Materials Science III 3 s.h.
Fundamental course for graduate students in the structure and properties of ceramics and glasses. Discussion of the relationship between structure and properties. Prerequisites: 502:67.

502:77 Materials Processing II 3 s.h.
Engineering and metallurgical aspects of casting and welding, including casting, deformation, welding, forging, and heat treatments. Prerequisites: 502:72.

502:78 Theoretical Basis of Melting 3 s.h.
Definition and calculation of melting points, thermal properties of materials. Prerequisites: 502:72.

502:79 Advanced Topics in Materials Science 3 s.h.
Advanced topics in materials science. May be repeated for credit. Prerequisites: 502:72.

502:710 Seminars, Advanced Topics, Research
502:710 Advanced Seminar 3 s.h.
Topics in advanced materials research. May be repeated for credit. Prerequisites: 502:72.

502:710 Individual Investigations 3 s.h.
Independent investigations of an approved topic on a one-semester basis. Prerequisite consent of instructor.

502:579 Research: Materials Engineering, M.S. Thesis 3 s.h.
Experimental investigation and analysis of an advanced research problem in materials engineering. Prerequisite: consent of program chair and major advisor.

502:579 Advanced Topics in Materials Engineering 3 s.h.
Topics dealing with current problems or developments in the field of materials engineering. May be repeated. Prerequisite: graduate standing.

502:579 Advanced Topics in Materials Engineering 3 s.h.
Topics dealing with current problems or developments in the field of materials engineering. May be repeated. Prerequisite: graduate standing.

502:579 Advanced Topics in Materials Engineering 3 s.h.
Topics dealing with current problems or developments in the field of materials engineering. May be repeated. Prerequisite: graduate standing.

502:579 Research: Materials Engineering, Ph.D. Thesis 3 s.h.
Experimental investigation and analysis of an advanced research problem in materials engineering. Prerequisite: consent of program chair and major advisor.

Division of Systems Engineering
Chad M. Ullmanbruch
Professor, Engineering, University of California, Berkeley
Assistant Professor, University of California, Berkeley

The Division of Systems Engineering is an interdisciplinary division of the College of Engineering which emphasizes, coordinates, and administers the teaching, learning, and research activities in the areas associated with large- scale systems analysis and design. Faculty in this Division develop and provide courses primarily in support of the undergraduate and graduate degree programs offered by the Program in Industrial and Management Engineering, the transportation portion of the Civil Engineering degree program, and the College undergraduate core curriculum. Research interests of the faculty are centered in areas associated with engineering management, human factors, cooperation research, engineering statistics, optimization, and computer and transportation planning. Specific research projects recently completed, or ongoing, include the study of linearly constrained optimization problems with economics of scale, the use of discriminant analysis in medical decision making, the development of mathematical models for public utility rate design, etc.
Design and Engineering Management Courses

580-121 Design of Work Methods 3 s.h.

Design of work methods with emphasis on improving the work environment and increasing productivity through the use of empirical data and various evaluation techniques. Prerequisite: ETH 205 or equivalent.

582-124 Operational Systems Design 3 s.h.

Operational system design, analysis, and evaluation. Students will gain a comprehensive knowledge of the design of new systems and improve existing ones. Prerequisite: MATH 205 or equivalent.

582-127 Engineering Management Science 3 s.h.

Analysis of management science techniques applicable to the engineering field. Emphasis will be on mathematics and probability. Prerequisites: MATH 205 and 206, or equivalent.

582-129 Introduction to Management and Engineering 3 s.h.

Introduction to management science techniques applicable to the engineering field. Emphasis will be on mathematics and probability. Prerequisites: MATH 205 and 206, or equivalent.

582-130 Engineering Management Science 3 s.h.

Application of management science techniques to the engineering field. Emphasis will be on mathematics and probability. Prerequisites: MATH 205 and 206, or equivalent.

582-131 Statistical Methods with Applications 3 s.h.

Statistical methods with applications to engineering problems. Emphasis will be on mathematics and probability. Prerequisites: MATH 205 and 206, or equivalent.

582-132 Quality Control and Reliability 3 s.h.

Statistical methods with applications to engineering problems. Emphasis will be on mathematics and probability. Prerequisites: MATH 205 and 206, or equivalent.

582-133 Analysis and Design of Experiments 4 s.h.

Analysis and design of experiments with applications to engineering problems. Emphasis will be on mathematics and probability. Prerequisites: MATH 205 and 206, or equivalent.

582-134 Regression Analysis 3 s.h.

Analysis of multiple linear regression models, residual
Faculty
The graduate faculty comprises University faculty and administrative personnel in the various associate, full professor. A 13-member Graduate Council, elected from and by the graduate faculty and the Graduate Student Senate, is the executive committee of that body and is advisory to the dean of the Graduate College.

The Graduate College
The University of Iowa has been a leading center of advanced study for three-quarters of a century. Presently, one-fourth 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.

Graduate courses are offered in all colleges of the University, both professional and nonprofessional. The Graduate College provides the framework through which graduate degree programs are supervised and coordinated.

The Graduate College is responsible for the review and approval of proposals for new graduate programs and for the periodic review 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 departments and other colleges of the University in the formulation of policies concerning selection and in the supervision and support of graduate students.

The University of Iowa has a long history of not only promoting, but strictly adhering to the ideas of equal access to educational opportunity at the undergraduate, graduate and professional level. The Graduate College, in cooperation with the Department of Special Student Services, is involved in an extensive outreach effort to identify and attract to The University of Iowa persons from minority, low-income and culturally or society distinct backgrounds.

Advanced Degree Programs
The University offers graduate programs leading to the Master of Arts, Master of Science, Master of Business Administration, Master of Arts in Teaching and Master of Comparative Law degrees; the two-year degrees, Master of Fine Arts, Educational Specialist and Master of Social Work, and the Doctor of Philosophy and Doctor of Musical Arts degrees.

The Graduate College currently confers degrees in the following major fields:

Accounting--M.A.
Agro-American Studies—M.A.
American Studies—M.A., Ph.D.
Anthropology—M.A., Ph.D.
Applied Mathematical Science—Ph.D.
Art—M.A., M.F.A., Ph.D.
Asian Civilization—M.A.
Astronomy—M.A.
Biology—M.S., Ph.D.
Biophysics—M.S., Ph.D.
Biostatistics—M.S., Ph.D.
Business Administration—M.A., M.B.A., Ph.D.
Business Education—M.A., Ph.D.
Chemical and Materials Engineering—M.S., Ph.D.
Chemical Physics—M.S., Ph.D.
Chemistry—M.S., Ph.D.
Chinese Language and Literature—M.A., M.S.
Clinical Psychology—M.A., Ph.D.
Computer Science—M.S., Ph.D.
Counseling—M.S.
Curriculum and Instruction—M.A.
Dentistry—D.D.S., M.D.
Dentistry—D.M.D.
Dentistry—M.D.
Dentistry—M.S.
Dental Hygiene—M.S.
Dentistry—M.S.
Economics—M.A., Ph.D.
Education—M.A., M.S., Ed.M., Ph.D.
Electrical and Computer Engineering—M.S., Ph.D.
Electrical Engineering—M.S., Ph.D.
Environmental Engineering—M.S., Ph.D.
Finance—M.A., Ph.D.
Geological Engineering—M.S., Ph.D.
Geography—M.A., Ph.D.
Geology—M.S., Ph.D.
Health Administration—M.A., M.B.
Hospital and Health Administration—M.A., Ph.D.
Industrial and Management Engineering—M.S., Ph.D.
Law—M.L.S., M.P.H.
Latin—M.A.
These are the primary sources of assistance:

**Teaching and Research Assistantships**

Available in most departments; stipends range between $4,400 and $4,900 for half-time assignments. Assistants are also eligible for tuition scholarships; nonresident assistants: one-quarter time or more tuition and fees are reduced to resident rates.

**University Teaching-Research Fellowships**

For first-year graduate students entering doctoral programs; typical stipends of $5,800 a year on a year-round basis, for as many as four years; recipients have teaching and research assignments, but may carry full course loads at the same time one year out of four and all summer. Recipients have full time to pursue studies, research or writing.

**Scholarships**

Up to 11/2 tuition and fees.

**Graduate Fellowships**

$4,000 for the academic year.

**Other Sources**

University and National/Defense student loans are available through the University's Office of Student Financial Aid.

Many departments offer additional support through research fellowships, part-time employment in research or part-time teaching appointments. The Office of the Vice-President for Educational Development and Research maintains a library of information on public and private agencies which provide funds for research and graduate study. A considerable amount of material has been collected containing awards for overseas study.

**Graduate Student Senate**

The Graduate Student Senate is the University graduate student body's representative organization. Representatives are elected annually from each department of the University having a graduate degree program. The Senate's primary purpose is to serve the interests of the graduate student body in matters affecting its welfare. The Senate advises the Graduate Dean 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, the official transcripts from each undergraduate and graduate institution attended must be submitted to the director of admissions by the designated deadline prior to the session in which admission is expected. Admission deadlines must arrive no later than July 15 for first semester enrollment, December 1 for second semester enrollment or May 1 for summer session enrollment. These are general Graduate College deadlines. Individual departments may establish earlier admission cutoff dates.

B. Graduate Record Examination

All applicants prior to conjunction for admission should take the Graduate Record Test of the Graduate Record Examination (GRE) or, for applicants to graduate programs in business administration, the Graduate Management Admission Test (GMAT). Applicants for whom admission is complete, with the exception of scores on the GRE or the GMAT, may, dependent on departmental policy, be admitted if they meet all other requirement. The GRE, or the GRE General Test, is taken within one semester after registration. The test is given several times a year at test centers established under the direction of Educational Testing Services, Princeton, New Jersey. The judgment of acceptable levels of performance on this test and its weight in the decision on admission of a student is left to the departments; some departments in fields where GRE Advanced Tests are
available require those in addition to the
Aptitude Test. Inquiries about the Aptitude
Test will be directed to University
Evaluation and Examination Service; and
inquiries about the requirement of the
Advanced Test should be addressed to the
executive of the department in which the
applicant is interested.

C. English for Foreign Students
Prior to consideration for admission, foreign
student applicants whose native language is
other than English must take and pass
TOEFL (Test of English as a Foreign
Language), unless they have received a
degree from an accredited college or
university in the United States, the United
Kingdom, Canada (except Québec), Aus-
tralia, or New Zealand. The examination is
given at various times of the year and in
many countries throughout the world. Inquiries
should be addressed to the Director, TOEFL,
Educational Testing Service, Princeton, New
Jersey 08540.

Foreign students transferring from un-
finished degree programs of other univer-
sities in the United States who have not
taken this examination, or who have
received a grade lower than the minimum
established by the Graduate Dean, must
pass the TOEFL examination and receive a
passing grade prior to consideration for
admission.

The Graduate College will advise the
departments of those students barely
passing the TOEFL test. Individual depart-
ments may require such students to take and
pass a course at The University of Iowa in
English usage designed especially for
foreign students.

D. Early Admission
A student who is within 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 conditional admission.

E. Candidacy
Admission to the Graduate College is not
the equivalent of acceptance as a candidate
for an advanced degree, which must be earned
through work successfully completed at
The University of Iowa. (See "Section X. Master's
Degrees," and "Section XII. Doctor's Degrees.")

F. Declaration of Major and Degree
Every applicant for admission must indicate
on the application form the department or
degree program or certificate program of his
or her major interest and the degree,
certificate or professional objective he or
she intends to pursue. The only exceptions
to this regulation are the limited number of
applicants registered as "special students." (See
definition of "special status" in next paragraph.) Changes in the major or degree
status may be made in the course of a
student's graduate study with the approval of
the department to which the transfer is
proposed. To initiate such action the student
must file a change of major or degree status
in the Office of Admissions.

G. Status upon Admission
All students upon admission fall into one of
the following categories:
1. Regular—Students who have met
the minimum requirements for admission
and who have been accepted by a department,
or interdepartmental degree program,
for
work leading to a graduate degree
or certificate or professional
improvement.
2. conditional—Students who are interested
in working toward a graduate degree or
certificate but who are required by a
department to demonstrate their ability to do
satisfactory graduate work before being
admitted to regular status. To be admitted on
a conditional basis, the student must be
recommended by a department, which will
assume responsibility for advising him or
her. (See minimum grade-point require-
ments, "Section I.H."). The student on
conditional status must achieve regular
status within two sessions of registration in
the Graduate College by attaining a
grade-point average of at least 3.00 and
acceptance by the major department, or be
dismissed.
3. Special—Students in receipt of a valid
bachelor's degree who wish to register for
no more than two courses at a time and who
are not planning to become candidates for a
graduate degree or certificate. These
students, relatively few in number, must
obtain special permission to register from
the Director of Admissions. Special graduate
students are not eligible for a graduate
degree or for a certificate in a
program.
4. Summer Session—Students with a valid
bachelor's degree and at least a 2.3
grade-point average may register for only
one summer session without being accepted
by a department or college. (See "Section
H" below.) The deadline for application for
admission to the summer session will be
determined by the director of the summer
session and the Director of Admissions.

Before admission to any subsequent
session, including another summer session,
the student must file an application and be
admitted to regular or conditional status.

H. Minimum Requirements for Admission
Graduates of any college or university
accredited by regional accrediting associa-
tions may be admitted to the Graduate
College if their academic records meet the
required standards. At the master's level, a
minimum grade-point average of 2.3 is
required for admission to conditional status.
A minimum of 2.5 is required for admission
at regular status. The grade-point average
is computed on graduate work if the
student has completed at least 12 graduate
hours. If the student has not completed 12
graduate hours, the grade-point average is
computed on the undergraduate and
graduate work completed. In cases in which a
student applying for admission has a
grade-point average below the minimum
required, but has a Graduate Record
Examination score above a point to be
designated by the Graduate Dean, his or her
papers shall be forwarded to the department
concerned for examination and decision.

Students applying for admission to a
doctoral program with 12 or more semester
hours of graduate work must meet the
minimum of GPA of 3.0 on the graduate
work completed after 12 semester hours of
graduate work, a minimum of 2.7 is required on the entire
record of collegiate work.

Departments, or committees in charge of
interdepartmental degree programs, may
establish additional requirements.

I. Admission of Faculty Members to
Graduate Study
Persons who hold faculty rank of assistant
professor or above at The University of
Iowa may be admitted as special students. See
"Section C" above. The director of the
department or college concerned may
approve admission.
Graduate Dean for permission to enter a departmental program for work leading to an advanced degree, certificate or professional improvement except in the department of ir or her appointment or closely related departments. Such petitions must have prior approval of the department of appointment, dean of the college of appointment, the department in which study is to be pursued and the Graduate Council.

Section II. Registration

A. Standard Schedule

Students registered in the Graduate College may register for no more than 15 semester hours of credit in graduate courses. In a schedule of mixed graduate and undergraduate courses, two hours of undergraduate credit may be substituted for one hour of graduate credit, with registration limited to a total of 18 semester hours. The apposite to the calculation of academic load only. Graduate credit is not given for courses numbered under 100. The maximum for the eight-week summer session is eight semester hours, or nine semester hours if two or more semester hours of undergraduate work are included.

The maximum semester hour registration for work scheduled outside of the regular 8-week summer session will be arranged on a basis proportionate to that stated above with the approval of the Graduate Dean. Nine semester hours in the regular session constitutes full-time registration. (Felons are required to carry at least nine semester hours during a semester as a condition of their appointment.) One-quarter-time and part-time appointments are permitted; to register for the maximum 15 semester hours per semester and eight semester hours during the eight-week summer session.

B. Courses Not Included in Total Registration

In addition to the full schedule, a graduate student may register for up to two courses in the Schedule of Courses as carrying no semester hours or credit.

C. Changes in Announced Credit

Graduate students may not register for more credit in any course than that printed in the Schedule of Courses, but may register for less credit or no credit, by permission of the instructor. The number of courses a graduate student may take for limited or no credit is subject to the consent of the advisor and the approval of the Dean of the Graduate College.

D. Reduced Schedules for Teaching and Research Assistants and Other Appointment

1. One-half-time appointment may register for no more than 12 semester hours during a semester or six semester hours during the eight-week summer session.

2. Five-eighths-time appointment may register for no more than 10 semester hours during a semester or five semester hours during the eight-week summer session.

3. Two-thirty-fourth-three-quarter-time appointments may register for no more than nine semester hours during a semester or three semester hours during the eight-week summer session.

4. Twenty-eighth-eighteen-eighths-time appointments may register for no more than seven semester hours during a semester or four semester hours during the eight-week summer session.

5. Full-time appointments, including full-time instructors, may register for no more than six semester hours during a semester of three semester hours during the eight-week summer session.

E. Retroactive Registration

No form of retroactive registration is permitted.

F. Registration for Part of a Semester

A graduate student may register at any time during the semester in the eight-week summer session for no more than one semester hour of credit for each of the remaining weeks of classes (not including the examination period) in the term. The total registration may not exceed the 15 semester hours permitted for a semester and the eight semester hours permitted for the eight-week summer session. Registration after the last day of the third week of a semester or the third day of the second week of a summer session is permitted only in courses involving special projects, readings, individual study, thesis or research, with the signed approval of the instructor concerned and the Graduate Dean.

G. Extramural Registration

After admission to the Graduate College, registration for work done off campus is accorded for residence credit under the following circumstances:

1. Traveling Scholar program of the Committee on Educational Cooperation (see "Section III.")

2. Residents of approved locations under the direction of members of the graduate faculty at the University of Iowa.

3. Field work as part of a regularly scheduled course or research program.

4. Course taught off campus by members of the graduate faculty (see "Section X.D."

5. Residents of non-semester hours required on campus for the master's and doctor's degrees).

6. As many as six semester hours of graduate work taken at the Quad-Cities Graduate Center from faculty other than faculty of the Iowa Regents University, provided the work is acceptable to the student's major department for the specified degree.

Extramural registration does not count toward residence credit in the following circumstances:

1. Work transferred from another institution;

2. Correspondence courses.

3. Extramural Fees and Privileges

A student enrolled in extramural courses to graduate residence credit must apply for admission to regular status (see "Section I.0") and pay established fees. (See "Section XIV.5" for special fees applicable to post-BA requirement registration, which should not be confused with extramural registration for residence credit.)

4. Correspondence Courses

Correspondence study courses do not count as residence credit. Graduate correspondence study credit earned prior to a student's acceptance as a degree candidate at The University of Iowa may count toward an advanced degree upon the approval of the appropriate college or department. No more than nine semester hours of correspondence work can be accepted for credit for an advanced degree. Grade credit must be acceptable for the must's Plan of Study and must be eare-ful. the student has attained graduate status. A student enrolled for correspondence credit may not register for correspondence courses without the ap-
prove of the executive of her or his major department and of the Graduate Dean.

J. System of Course Numbers

Courses primarily for graduate students are numbered 200 or above in each department. Courses open to and carrying credit for both graduate and undergraduate students are numbered from 100 to 199. Courses below 100 are not accepted for graduate credit.

K. Auditing of Courses

In special cases, and upon the recommendation of the instructor and the adviser, the dean of the Graduate College may grant permission to graduate students to audit courses for no credit. Auditing is permitted only to a student who is currently registered.

L. Dropping of Courses

At graduate students who drop courses after the deadline date established by the dean of the Graduate College for each session and published by the registrar shall receive the grade of F unless the entire registration is cancelled. This regulation may be waived only by the graduate dean on the recommendation of the Student Health Director or the Student Counseling Service. If a student cancels registration after the deadline date, he or she must obtain permission from the dean of the Graduate College before he or she is 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. Procedure

1. A CIC Traveling Scholar first must be recommended by his or her own graduate adviser, who will approach an appropriate faculty member at the possible host institution in regard to a visiting arrangement.

2. After agreement by the student's adviser and the faculty member at the host institution, graduate deans at both institutions will be fully informed by the adviser and have the power to approve or disapprove.

3. A CIC Traveling Scholar will be registered at the home university, and fees will be collected and kept by that institution.

4. Credit for the work taken will be recorded at the home university.

5. Those desiring additional information should inquire at the office of the Graduate College.

C. Conditions

CIC Traveling Scholars will normally be limited to two semesters or three quarters on another campus. Each university retains its full right to accept or reject any student who wishes to study under its auspices.

Section IV. Academic Standing, Probation and Dismissal

A. Master's, Specialist, Certificate, or Other Nondegree Students

A student on regular status shall be placed on probation, if, after completing eight semester hours of graduate work, his or her cumulative grade-point average on graduate work done at the University of Iowa falls below 2.50. If, after completing eight more semester hours of graduate work at this University, his or her grade-point average remains below 2.50, he or she shall be denied permission to register; otherwise, the student shall be restored to good standing.

B. Doctoral Students

A doctoral student on regular status shall be placed on probation if, after completing eight hours of graduate work, the student's cumulative grade-point average on graduate work done at the University of Iowa falls below 3.00. If, after completing eight more semester hours of graduate work at this University, the student's cumulative grade-point average remains below 3.00 for any one semester, the student shall be dropped from the program and denied permission to register; unless he or she applies and is accepted for another degree or certificate program. If the condition of probation is met, the student is returned to good standing.

C. Restriction on Students on Probation

A student on probation shall not be permitted to take comprehensive or final examinations leading to any degree or certificate, nor may the student receive any graduate degree or certificate.

D. Departmental Regulations and Dismissal of Information

In addition to the above University-wide requirements, departments may establish further requirements which then determine the individual student's standing with regard to probation and dismissal. To this end, each department or program shall compile a written list of standards and procedures for work in that area. These documents shall be on file in each departmental office and the office of the graduate dean. Copies are to be available for students in the departmental office, and departments shall make all reasonable efforts to inform students. Subsequent changes in standards or procedures shall be communicated to the department to each student and the graduate dean. Whenever departments revise standards for a given program, the new regulations will not apply retroactively to the disadvantage of those already in the program. In addition to notifying students that they are subject to the rules of the Graduate College as set forth in the Manual of Rules and Regulations, any standards established by the department more stringent than the general Graduate College requirements shall be stated. Information shall be provided outlining required courses applicable to the various departmental programs of study, examination procedures and other formal evaluations. Departmental policies with regard to awarding and renewing assistanceships, time limits on programs of study, departmental registration policies, departmental grade-point requirements, requirements for changing from one degree program to another within the department, especially from the master's to the Ph.D., departmental probation and dismissal policies and procedures (see E following), and such other matters as are appropriate. The nature of the departmental assistance shall be explained to the incoming students.

E. Academic Progress, Departmental Probation, and Dismissal Procedures

If a student is failing to meet departmental standards, the department shall warn the student of this fact in writing. The notification shall specify in what way(s) the student is failing to meet the standards. The student shall be provided with a reasonable amount of time to meet the standards prior to departmental dismissal. If, in its monitoring of a student's progress, conditions such as
conditional admission or probation are imposed, the department shall give, at the time of its imposition, written explanation of this status and its time limits. A student who will not be permitted to register for failure to meet standards shall be notified of this fact in writing with reasons for the action provided. Such dismissal may occur at any time, in order to maintain the standards of the university and the goals of education, and may result in dismissal from the university. If a student does not withdraw voluntarily or if voluntary withdrawal is not in the student's best interest, the student may be dismissed by the office of student affairs.

Section IV. Departmental Policies

A. Transfer of Graduate Credit

Graduate work at other institutions will be entered on the student's permanent record by the registrar. A student may request that credit be accepted toward the degree if criteria are met, including but not limited to: the course is not offered at the Center for Graduate and Professional Studies; the course is not offered at the Graduate Center; the course is not offered at the College of Professional Studies; the course is not offered at the College of Continuing Education; the course is not offered at the College of Arts and Sciences; the course is not offered at the College of Business Administration; the course is not offered at the College of Health Sciences; the course is not offered at the College of Education; the course is not offered at the College of Fine Arts. If the course is accepted, the student will receive credit for the course as specified in the catalog for the Center for Graduate and Professional Studies.

B. Residence Transfer Credit

Graduate credit awarded in residence at another college or university may be accepted as transfer credit. A student must be admitted to a program at the Graduate Center or the College of Professional Studies in order to be considered for transfer credit. The student must meet the admission requirements of the program and must submit an official transcript to the Graduate Center or the College of Professional Studies. If the course is accepted, the student will receive credit for the course as specified in the catalog for the Center for Graduate and Professional Studies.

Section V. Academic Policies

A. Transfer of Graduate Credit

Graduate work at other institutions will be entered on the student's permanent record by the registrar. A student may request that credit be accepted toward the degree if criteria are met, including but not limited to: the course is not offered at the Center for Graduate and Professional Studies; the course is not offered at the Graduate Center; the course is not offered at the College of Professional Studies; the course is not offered at the College of Arts and Sciences; the course is not offered at the College of Business Administration; the course is not offered at the College of Health Sciences; the course is not offered at the College of Education; the course is not offered at the College of Fine Arts. If the course is accepted, the student will receive credit for the course as specified in the catalog for the Center for Graduate and Professional Studies.

B. Residence Transfer Credit

Graduate credit awarded in residence at another college or university may be accepted as transfer credit. A student must be admitted to a program at the Graduate Center or the College of Professional Studies in order to be considered for transfer credit. The student must meet the admission requirements of the program and must submit an official transcript to the Graduate Center or the College of Professional Studies. If the course is accepted, the student will receive credit for the course as specified in the catalog for the Center for Graduate and Professional Studies.
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 scholar-
ships 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 Fellowship
Fellowships are awarded by the Graduate
College upon recommendation by depart-
ments 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 com-
plete the degree. Other terms of the award
will be established by the graduate dean in
consultation with the Graduate Council.
C. Faculty Research Assistantships
Faculty research assistantships are awarded
to qualified graduate students and serve two
purposes: (a) to provide research service to
professional members of the academic staff
and (b) to provide apprenticeship experience
for graduate students who are in training in
research. Not more than 20 hours of service
per week are required of a half-time assistant.
Other part-time service is scaled in propor-
tion, and a fixed academic schedule is
permitted. Faculty research assistantships
are ordinarily made for the nine-month academic
year, but appointments may be made for other periods of
time by special arrangement. Stipends vary with
the qualifications of the appointee and the
amount of service rendered. Faculty
research assistants appointed by the
Graduate College pay their own fees.
Graduate appointments are usually made
by the graduate dean upon recommendation of the
various departments in March of each year,
although appointments may be con-
considered at any time. Applications should be
made in the form provided by the Graduate
College, and should be accompanied by
recommendations and/or a letter summa-

D. Graduate Assistantships
These assistantships serve two purposes:
(a) assistance in the instructional program of
the University and (b) the preparation of
tuition college teachers. In order to achieve
these aims, scholarly and superior graduate students who show exceptional promise as
teaching assistants are selected for graduate assis-
tantships. All appointments are made by
the dean of the appropriate college on
recommendation of the department.
E. Eligibility for Scholarships, Fellowships and Research Assistantships
Scholars, fellows and faculty research
assistants in the Graduate College budget
must be registered as regular students in
good standing in order to hold such
appointments. Fellowships will be termi-
nated when registration and/or student
status is terminated. In no instance may a
student be promoted or tendered an
appointment until after approval for
admission to the Graduate College by the
director of admissions.
F. Dismissal of Assistants
A uniform policy defining procedures to be
followed in the dismissal of assistants has been
approved by the Board of Regents.
For a complete list of available assistantships in the office of the graduate dean.
G. Research Associateships and Postdoctoral Fellowships
These provide for independent research.
Appointment is made by the graduate dean
upon recommendation of the department.
H. Credit
No academic credit is allowed for the
coaching or research service for which the
disciplinary academic appointment as a graduate or a
faculty research assistant.
I. Loans
Graduate students requiring financial assis-
tance may contact the Office of Student
Financial Aid. See "Scholarships and Loans" 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 department.

F. Grades of S and U
S and U may be used for courses taken by
a graduate student outside the major
department or interdepartmental degree
program provided that the instructor of
the course and the student's departmental
adviser approve the registration. Arrange-
ments for SU grading in these courses are
accomplished by filling out a card with
appropriate signatures to 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 SU grades or vice versa will be
allowed after these dates.

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) cumulative grade-
point average of at least 3.0; (c) GRE scores
or a GMAT score above a point to be
designated by the Graduate Dean; (d) a

Section VIII. Advanced Programs Offered in the Graduate College

The subject areas in which the Graduate College offers degree programs are listed under "Advanced Programs" in the forepart of the "Graduate College" section of the Catalog.

Section IX. General Requirements for Advanced Degrees

A. Application for Degree

The student must file an application for an anticipated degree with the registrar not later than 10 weeks after the start of the semester or one week after the start of the summer session in which the degree will be conferred. The student must have the application signed by his or her advisor. Failure to file the application by that date will result in postponement of graduation to a subsequent graduation.

B. Enrollment In Final Semester

The student must be enrolled during the session in which the degree is to be conferred, except as noted in the following paragraph. Students who must register for the session in which the degree is to be conferred but are away from the University campus during that session may meet this requirement by registering for independent study, research or thesis according to the practice in the various departments. Doctoral candidates who have completed all work except the dissertation may register for the postcomprehensive registration described in "Section X.X.1." if such registration is appropriate. Master's candidates who have completed all work except the final examination may register for a fee equivalent to the "postcomprehensive registration," if such registration is appropriate. Registration in a correspondence course will not satisfy this requirement. Students completing all requirements (including the final examination and thesis deposit) for a graduate degree while enrolled in the Independent Study Session may receive their degree in the following session without additional registration.

Section X. Master's Degrees

A. Kinds of Degrees

Master's programs requiring a minimum of 30 semester hours lead to the Master of Arts degree, Master of Science degree, Master of Business Administration degree, Master of Arts degree in teaching, and Master of other master's degrees as are approved by the graduate faculty.

B. Plan of Study

The applicant for a master's degree must file a plan of study approved by the adviser and the departmental executive with the Graduate College within the session in which the degree is to be granted and by a date to be established by the graduate dean. The plan shall meet the requirements for the degree approved by the graduate faculty. (See also "Section V.D. Departmental Regulations and Dissemination of Information").

C. Major and Related Fields

The plan of study should provide for reasonable concentration in the major field of interest and, subject to the approval of the major department, may include related subjects from other departments.

D. Residence Requirement

Of the minimum of 30 semester hours required for the degree, at least 24 semester hours must be completed under the auspices of The University of Iowa. After admission to the Graduate College, various forms of extramural registration may qualify toward fulfillment of this 24-hour residence requirement (see "Section III. B. Extranual Registration"), in addition to regular on-campus registration. However, at least 18 semester hours on campus are required except for those departmental programs which ensure sufficient interaction between the students and the graduate faculty and have received approval from the Graduate Council and the dean of the Graduate College for reduction of this on-campus requirement.

E. Reduction of Old Credits

Credits for a master's degree dating back more than ten years from the session in which the degree is to be conferred are not counted toward fulfillment of degree requirements. This rule may be waived by the Dean in cases affected by military service.

F. Limit on Law, Medical, or Dental Courses

Work taken by a student in the colleges of Dentistry, Law, or Medicine while enrolled as a candidate for a professional degree may be counted on a graduate program of study leading to a master's degree, provided such courses were taken after the student had satisfied the requirements for the bachelor's degree, or work equivalent to the bachelor's degree at a University of Iowa, the work accepted from the professional college must be directly related to the student's major field of study in the Graduate College and be approved as a part of the plan of study by the student's adviser and the major department. Work completed while registered for a professional degree in Law, Medicine or Dentistry will be counted as part of the residence requirement for nondisciplinary degrees in the Graduate College only when the student is registered in an appropriate joint degree program.

G. Two Master's Degrees

The granting by this University of two master's degrees simultaneously or in succession requires the satisfaction of all requirements for each degree separately, including theses, where a thesis is required for each, and two examinations, with a minimum combined total of 60 semester hours of graduate credit.

H. Master's Degree with Thesis

Not more than eight semester hours of credit for thesis preparation shall be counted in satisfying the 30-hour minimum requirement. The thesis may be a scholarly study or an artistic production.

One copy of the thesis, in typed manuscript or print, must be presented to the Graduate College for a check of formal characteristics not later than four weeks before the graduation in which the degree is to be conferred. (See Graduate College publication, "Requirements for Graduate Theses.") After approval by the Graduate College and by the thesis committee, a final copy of the thesis must be deposited with the Graduate College not later than 10 days before graduation.

The thesis committee shall consist of at least three members of the graduate faculty and may or may not be identical with the final examination committee. (See "K. Examination Committee").

I. Master's Degree without Thesis

A master's degree without thesis, consisting of a minimum of 30 semester hours of graduate study, may be awarded upon the completion of a curriculum prescribed by a department and approved by the Graduate Council.

J. Final Examination

The requirements for all master's degrees include a final examination, which, at the
C. Master of Social Work Degree

The M.S.W. degree is conferred by the University upon those students who give evidence of knowledge and competence in the professional practice of social work by meeting the following requirements:

1. A minimum of 24 semester hours in residence at The University of Iowa.
2. A minimum of 52 semester hours in graduate social work, including a research requirement.
3. A final comprehensive examination, written or oral, or both, covering all work for the degree.

The requirement of 52 semester hours may be interpreted to mean that a student who can satisfy the faculty of the School that he or she has accomplished, in the junior or senior undergraduate years, the clear equivalent of part or parts of the graduate curriculum in social work may be permitted, upon recommendation of the faculty of the School, to qualify for the M.S.W. degree on less than 50 semester hours. In no case may a student qualify for the degree on less than 40 credit hours in graduate social work study.

The curriculum is organized into four general areas: social work practice, human growth and behavior, the social sciences and research. During the two-year graduate program, coursework is combined with field and social agency or social work departments. Since 1964 the curriculum has been designed to meet the needs of students entering the School of Social Work.

For enrollment requirements, see "Section X.B. Plan of Study": "E. Reduction of Old Credits"; "F. Limit on Law, Medical or Dental Courses"; and "K. Examining Committees."

Section XII. Doctor's Degree

A. Character of Degree

The University 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 Musical Arts degree indicates marked excellence in research or other creative work and superior accomplishment 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 a related field. The candidate is expected to have completed at least three years of residence in a graduate college. At least part of this residence must be spent in full-time involvement in one's discipline, at this University, beyond the first 24 semester hours of graduate work; this requirement can be met either by (1) enrollment as a full-time student (nine semester hours minimum) in each of two semesters or (2) enrollment for a minimum of six semester hours in each of three semesters during which the student holds at least a one-third-time assistantship certified by the department as contributing to the student's doctoral program. (For purposes of record and assessment of fees, student registration should reflect accurately the amount and kind of work undertaken in the Graduate College. All doctoral programs, including acceptable transfer credit, will contain a minimum of 72 semester hours of graduate work.)

D. Plan of Study
The development of a plan of study at the doctoral level is the model responsibility of the student working together with his or her advisor. A formal plan of study must accompany the departmental request to the Graduate College for permission to conduct the comprehensive examination. The plan will provide a listing of all graduate courses taken which apply toward the degree and a listing of courses in progress or to be completed after the comprehensive examination.

E. Ad Hoc Interdisciplinary Programs
A student may prepare a proposal for an interdisciplinary course of study, including the plan for the comprehensive examination, under the sponsorship of at least three faculty members and the department most directly concerned, which shall be designated as the student's sponsoring committee. Approval of such individual programs is granted by the graduate dean, who may add members to the student's sponsoring committee from other closely related departmental faculties. The degree will be awarded in the interdisciplinary field stipulated in the approved program and, parenthetically, the name of the sponsoring department.

F. Reduction of Old Credits
Courses taken ten or more years prior to the comprehensive examination will be evaluated by the major department in order to determine the amount of credit that shall be allowed for such work. Evaluation of such old credits will be reported to the Graduate College by the departmental executive at the time of notification 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 in a graduate program leading to a doctoral degree if it is taken after the student has satisfied the requirements for a bachelor's degree at this University. The work accepted from the professional colleges must be directly related to the student's major field of study in the Graduate College, and the plan of study must be approved by the student's advisor and the major department. Work completed while registered for a professional degree in law, medicine or dentistry will not be counted as part of the one academic year 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
These students who expect to continue their training through the doctoral degree may file a joint program for the master's and doctor's degrees. The master's degree may be combined with the comprehensive examination for the doctorate for these candidates. The examining committee will file separate reports of its work or the final examination for the master's degree and for the comprehensive examination. Upon recommendation of the department and approval of the graduate 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 departmental statements of standards and procedures (see "Section IV.D."). 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 departments.

J. Comprehensive Examination
The candidate must pass a comprehensive examination, consisting of written or oral parts or both at the discretion of the major department. Admission to the comprehensive examination is granted upon the recommendation of the major department, the filing of the plan of study and the approval of the dean of the Graduate College. A student must be registered in the University at the time of the comprehensive examination, which must be passed not later than the semester prior to the deadline of graduation. This examination, administered only on campus, is intended to be an inclusive evaluation of the candidate's mastery of the major and related fields of study, including the tools of research in which competence has been certified.

The comprehensive examination is not a deferred qualifying examination. It is intended to evaluate the candidate's mastery of his or her subject or at near the end of his or her formal preparation and prior to the completion of the dissertation. The comprehensive examination and the final examination, which is concerned chiefly with defense of the thesis and related subjects, are the two principal examinations for the doctoral degree.

The comprehensive examination will be evaluated by a committee of three members of the candidate's major department, and by the dean of the Graduate College. The report of the committee must be submitted to the dean within 15 days after the completion of the examination. The report must be signed by the members of the committee. A copy of the report must be filed in the Graduate College office. The report of the committee shall contain the name of the candidate, the major department, the name of the examining committee, and the title of the dissertation. The report shall be filed in the Graduate College office. The report must be signed by the members of the committee. A copy of the report must be filed in the Graduate College office. The report of the committee shall contain the name of the candidate, the major department, the name of the examining committee, and the title of the dissertation. The report shall be filed in the Graduate College office.
particular area of study, the statement should be specific in defining the area, in requiring additional courses or other procedures, and in specifying the time and method of satisfying the stipulation. The candidate will not be admitted to the final oral examination until such stipulations have been satisfied. The executive of the major department should promptly send a written report to the Graduate College giving date of removal of "reservations." In case of a report of unsatisfactory in a comprehensive examination, the committee may grant the candidate permission to present himself or herself for reexamination not sooner than four months after the first examination. The examination may be repeated only once, at the option of the department.

K. Postcomprehensive Registration

The student is required to register with semester after passing the comprehensive examination until the degree is awarded. If the student fails to register, he or she will not be readmitted to candidacy until he or she has submitted an application which has been approved by his or her adviser, the departmental executive and the graduate 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 course, 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 paying a special minimum fee (Ph.D. postcomprehensive registration) for any semester in which the department (i.e., department chair or director of graduate studies) and the student's adviser determine that the student is neither making significant use of the University facilities (except library privileges) nor making significant consultation with the faculty. It is understood that no registration for a summer session is required when the student major use no use of University resources unless the student is taking a degree at the end of that session.

I. Dissertation for the Doctoral Degree

Acquity of the dissertation must be presented at the Office of the Graduate College not later than four weeks before the graduation date at which the degree is to be conferred and two copies deposited there in final form 10 days before graduation. Regulations regarding preparation of the dissertation copy shall be promulgated by the Dean of the Graduate College. Dissertations will be microfilmed and must comply with regulations. Each is an abstract of the dissertation, not to exceed 400 words in length, to be deposited with the dissertation. The abstract must be approved and signed by the dissertation advisor. The abstract is published in the journal of Dissertations Abstracts. One copy of the dissertation-type text is bound and indexed at the University Library. If the dissertation is in nonprint form (e.g., painting, sculpture, performance in music) the librarian in charge of these theses will help the student and faculty advisor work out an appropriate method of preparing the accompanying manuscript, if such help is needed. Once the manuscript accepted, it is treated the same as any other. 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 the above processing of the dissertation and abstract.

N. Final Examination

The work for the degree culminates in a final oral examination administered on campus. This examination is the culmination of a comprehensive examination. It includes an oral presentation of the written examination and an oral defense of the written work requiring a minimum of 4 years of study from the time of registration to the dissertation. The final examination may not be held until the last semester after the student passed the comprehensive examination or until the final check of the dissertation by the Graduate College; however, a student must take the final examination no later than five years after passing the comprehensive examination. Failure to meet this deadline will result in reexamination of the student to determine the status of any requirements for taking the final examination. The procedures to be followed are the same as those for the comprehensive examination. (See "XVII. 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 date of the examination. The final examination will be evaluated as satisfactory or unsatisfactory. Two unsatisfactory votes will make the committee report unsatisfactory. In case of a report of unsatisfactory in the final examination, the candidate may not present himself or herself for reexamination until the next session. The examination may be repeated only once, at the option of the major department.

O. Examining Committees

The comprehensive and final examinations are conducted by committees of no fewer than five members of the graduate faculty appointed by the graduate dean upon recommendation of the major department, except that departments may ask the dean for permission to replace one of the five members of the graduate faculty by a recognized scholar of professional rank from another academic institution. A member of the graduate faculty from outside the major department is required in those cases where a related field outside the major department is included in the comprehensive examination. For the final examination one member of the committee must be a member of the graduate faculty from outside the major department.

Upon recommendation of the major department, the graduate dean may appoint additional qualified persons (not necessarily members of the Graduate faculty) to serve as voting members of the examining committees, and at his or her discretion the graduate dean may add a voting member to the committee.

Section VIII. Exceptions

Permits 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.
College of Law

The University of Iowa College of Law is one of 27 charter members of the Association of American Law Schools and has long been recognized and approved by the American Bar Association’s Council of the Section of Legal Education and Admission to the Bar.

The Curriculum

Iowa’s law program is distinctive in its first-year approach. There is a freshmen seminar in which small groups of students have opportunities for new individual expression, closer faculty relationships, the writing of several research papers and a closer approach in graduate-level instruction.

Each first-year course has a specified function in helping students develop analytical abilities and place the legal process in its social context. All first-year students are introduced to legal research through written assignments, as well as instruction in legal method and in legal bibliography.

During the second year, all students are required to take two courses and a course in appellate advocacy. Before they graduate, all must also take a second course in constitutional law. All other second- and third-year courses are elective.

Each student will be required to complete five units of research and writing in addition to the first-year writing program. This requirement can be satisfied through any combination of courses and activities which carry writing credit, including seminar papers, independent research projects, Iowa Law Review and participation in the appellate advocacy and counseling programs.

Students may also take courses in other colleges of the University. To receive credit for such a course, the student must obtain prior permission of the dean of Law.

Applicants to the College of Law should be advised that receiving a law degree does not alone qualify one for many professional positions. The supreme courts of each jurisdiction administer a bar examination, successful completion of which is a condition of practicing in their courts.

The Joint Program

In addition to its regular program leading to the Juris Doctor degree, the College offers a joint program leading to the J.D. degree and an advanced degree (M.A. or Ph.D.) from a participating department of the University of Iowa Graduate College.

Under this program, if a student takes a course which is required to both degrees, the course can be counted toward the semester-hour requirements for both degrees. In addition to reducing the time required to obtain both degrees, it is hoped the student will be able to contribute to one discipline the insights he or she has gained in the other. Applicants for this program must meet the admission requirements of the Graduate College, in addition to those of the College of Law.

Summer Session

Regular classwork of the summer session will extend over 11 or 12 weeks, with most courses taught in two successive periods of five and one-half weeks each. Six to eight upperclass courses and three to four first-year courses are normally offered. Students who begin their law study with a summer term may complete it in two regular and three summer terms, instead of the usual three calendar years. The work given in the summer session is the same in kind and amount as that given in the corresponding subject in the regular term, and the admission requirements of any course taken in the summer gives the student full credit toward a degree.

Graduation Requirements

Residence Requirements

To satisfy the residence requirements, a student must complete a minimum of either:

Dean: A. William Hines
Dean emeritus: Nathan Field
Associate dean: Virgil H. Frank
Assistant dean: Gregory P. Williams, Thomas C. Grinnell
(School of Law faculty)
Jonathan A. Millon (Business Law Center)
James B. Marks, Patrick M. Nauber, Charles A. Yoder
Jr., Mark F. Schrimsher, Douglas A. Sigmon, David H. Vernon
(Law School Foundation Ph.D. candidates)
(Dean Professorial)
Instructor: Anne Sclater, John Thompson
Instructor Philip A. Loof, Casey D. Mahan, David A. Mork
James Hammers, William V. Phelan, L. Vern Robinson, Dr.
Earl Ross
Degree offered: J.D.
Scholastic Requirements

Numerical grades may be translated into letter grades for purposes of comparison as follows:

<table>
<thead>
<tr>
<th>Numerical Grade</th>
<th>Letter Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>100-90</td>
<td>A</td>
</tr>
<tr>
<td>89-80</td>
<td>B</td>
</tr>
<tr>
<td>79-70</td>
<td>C</td>
</tr>
<tr>
<td>69-60</td>
<td>D</td>
</tr>
<tr>
<td>59-50</td>
<td>F</td>
</tr>
</tbody>
</table>

A first-year student who fails to maintain a cumulative average of 65 after registering for 24 or more semester hours of work shall be ineligible to continue in the College of Law. All other students must maintain a cumulative average of 65 to be eligible to continue in the College.

Graduation Honors

The J.D. degree may be granted with special honors as follows: With High Distinction—cumulative average of 80 or more. With High Distinction—cumulative average of 80-84. With Distinction—cumulative average of 75-79.

Related Activities

The Iowa Law Review

Published five times a year and circulated to more than 5,000 subscribers, the Review is managed and edited by College of Law students, who also write much of its material. The Journal’s editorial board is selected from students exhibiting superior writing ability.

The Iowa Advocate

Written, edited, and published by law students, The Advocate provides a vehicle for College news, editorials, expressions of student opinion and profiles of College faculty members and guests.

Legal Clinic Programs

Students who have completed one-half of the work toward their J.D. degrees are eligible to participate in the Legal Clinic Program, which offers four basic kinds of opportunities for students to apply their theoretical knowledge to real cases under the supervision of faculty members and other attorneys.

Students in the Legal Aid Clinic represent indigents in several areas of the law. Students in the Prisoner Assistance Clinic represent inmates at two correctional institutions in both Des Moines and rural areas. Students in the Civil Litigation Clinic represent clients in civil cases. Students in the Legislative Internship Program are assigned to work with legal assistants to state legislators.

In addition to these programs carrying academic credit, the College of Law participates in the National Moot Court Competition, through which students work for the office of county attorneys throughout the state.

Appellate Advocacy

Provides each student with an opportunity to participate in legal research, analysis, writing, and oral argumentation. Includes competitions to determine which student will represent the College of Law in the Regional and National Moot Court Competitions, the Jessup International Moot Court Competition, and the Wagner Labor Law Competition.

Client Counseling Program

Provides students an opportunity to develop interviewing and counseling skills through simulated client interviews. Includes an intramural phase and tournament competition to determine College of Law representatives to the American Bar Association-sponsored regional competition. Administered by a board of third-year students who have distinguished themselves in the program the previous year.

Center for World Order Studies

The Center for World Order Studies (a project of the Stanley Foundation of Moline, Iowa) was established in June 1972 at the University of Iowa as a Midwest center for education and research in the causes of and potential cures for existing and future world order problems, particularly those related to the use of military power across national boundaries. In cooperation with public and private schools, colleges and universities, and private and business organizations throughout the country and especially in the Iowa-Illinois area, the major function of the Center is to promote increased understanding of these world order problems through curriculum, research, and seminars, conferences, workshops, simulation exercises, coffee seminars, publications, debates, and related learning techniques.

Student Organizations

Law student organizations at Iowa include the Order of the Coif, a national honorary society whose membership is drawn from the top ten percent of the senior class; the Iowa Society of International Law; Phi Delta Phi and Phi Alpha Delta, national law fraternities; and the Black American Law Students Association. The Civicana Association for Legal Education, the Organization of Women Law Students and Staff, the Law Student Division of the American Bar Association, the National Lawyers Guild, the Environmental Law Society, and the Iowa Society of International Law. All students are members of the Iowa Student Bar Association, whose functions include placing students as clerk members on faculty committees.
Facilities
The Law Building contains a library and air-conditioned classrooms. With its collection of approximately 500,000 bound volumes, the Law Library is an outstanding research facility. A broad open-seat policy makes it readily available to students.

Fees and Expenses
In addition to regular tuition and fees, books and supplies in the law are about $620 per year. Housing costs and personal expenses will vary with individual circumstances.

Financial Aid
The College requires all students to enroll for a full schedule and discourages them from taking outside employment during the first year. It has developed a comprehensive financial aid program which enables most students to meet expenses without outside employment. In addition to the awards listed in the "Scholarships and Loans" section of the Catalog, the College offers research assistantships with substantial benefits. Assistantships are awarded to high-ranking upperclass students who have demonstrated ability for research and scholarship.

Placement
A wide variety of placement opportunities is available upon graduation from the College of Law. These include opportunities to work in government, as clerks to judges, in corporations and in private practice. In recent years, approximately half of the graduating class have assumed positions in Iowa. Each year, numerous law firms, corporations and government agencies visit the University to interview students from the College of Law.

Admission
Prelaw Studies

No prescribed program of undergraduate studies is required for admission to the College of Law at Iowa. The student should formulate a program adapted to his or her own intellectual interests. However, the objectives of the program should include increased ability for verbal comprehension and expression, increased understanding of human institutions and values, and increased faculty of thought.

Admission Requirements

Students may enter the College of Law in the fall semester or summer term. Except for good cause shown, a prospective student must apply for admission by March 1 preceding the fall semester or summer session he or she wishes to enter. The applicant must present a baccalaureate degree from an approved college or university before beginning work in the College of Law. The College must have received, by the deadline date, the applicant's Law School Data Assembly Service report and Law School Admission Test results. The applicant is responsible for having all of his or her college transcripts sent to the Law School Data Assembly Service, Inc., in4, New Jersey. The Law School Admission Test is administered by the Educational Testing Service, also located in Princeton. A $10 application fee must accompany applications from prospective students not completing their undergraduate study in residence at The University of Iowa. Fulfillment of the specific requirements for admission listed above does not ensure admission to the College of Law. From applicants meeting the minimum requirements, the admissions committee of the College will select those who appear to be best qualified for the study and practice of law. The admissions committee may require personal interviews with applicants. The College participates in the University's Educational Opportunities Program and gives individual consideration to applicants from disadvantaged backgrounds.

Advanced Standing

A transfer student may be eligible for admission if he or she entered a school which is a member of the Association of American Law Schools. In good standing at the time of withdrawal (evidenced by a letter from the dean of the school from which he or she is transferring), meets the admission requirements for entering students at this school and has done substantially above average work in the law school he or she attended. No more than 30 semester hours of resident credit may be transferred from another school. Where an applicant has completed more than one year of law, advanced standing will be permitted only in exceptional cases, and no more than one year's credit will be granted.

Advance Deposit

Accepted applicants are required to make a $250 deposit by April 1, or within ten weeks after being notified of their acceptance, if that occurs after April 1. An applicant who fails to make the deposit within the specified time forfeits his or her place in the entering class. Those who enroll receive credit for the deposit on their first University bill. The deposit is refunded only to an applicant who cannot enrol because of circumstances beyond his or her control.

Physical Report

Accepted applicants who are new to The University of Iowa must submit a satisfactory physical examination report to the University Student Health Service.

Courses

1818 CMW Populare

2-3 s.h.

When the government seeks to protect the social order, the courts must decide whether a law infringes upon constitutional rights. The course emphasizes the relationship between the legislative and judicial processes in the enforcement of law. The course may be taken for both credit and noncredit on a pass/fail basis.

1818 Constitutional Law I

3-4 s.h.

This course covers the constitutional limitations on the power of government. It examines how the Constitution can be used to prevent the federal government from abusing its power. Precedents may be cited from all levels of government. Topics covered include: the separation of powers; the nature and extent of judicial review and its effects on the political process; and the roles of the judiciary and Congress in shaping the policies of the federal government. The course looks at the constitutional issues related to the national government and to the federal government's relationship with the states. The course is offered in the Fall semester.

1823 Criminal Law

3 s.h.

This course covers the legal rules related to the definition and prosecution of crime. Topics include: the nature of the criminal law; the principles of criminal liability; the constitutional rights of the accused; the administration of criminal law; and the role of the judiciary in the criminal justice system. The course is offered in the Fall semester.

1824 Federal Income Tax

3 s.h.

This course covers the principles and practices of federal income tax law. Topics include: the definitions and characterization of income; the concepts of gross income and deductions; the computation of taxable income; and the application of the tax law to various types of transactions. The course is offered in the Fall semester.
The University of Iowa College of Medicine accepts 175 freshman students each year into its four-year course of study leading to the degree of Doctor of Medicine. The faculty members provide undergraduate and graduate instruction in anatomy, biochemistry, microbiology, pharmacology, physiology and biophysics, hospital and health administration, pathology, obstetrics, ophthalmology, preventive medicine, environmental health, and radiation biology, to some 1,500 non-medical students each semester—most of them from the three other University of Iowa health profession colleges: Dentistry, Nursing, and Pharmacy, but many others from the life science areas of the College of Liberal Arts.

The College of Medicine is responsible for the education of physicians' assistants, medical technologies, physical therapists, and nuclear medicine technologists, and it course on a year-round program of continuing medical education, in which several thousand practitioners update their knowledge and skills through "refresher," short courses, workshops, and conferences each year.

Beyond its academic responsibilities as the only college in Iowa offering work toward the M.D. degree, the College of Medicine is concerned with vital public issues of distribution and organization of health care services. Medical faculty members advise and serve as members of 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.

To provide opportunity for young physicians to experience the satisfactions of providing primary care in a variety setting, undergraduate medical students have several opportunities to gain first-hand experience in physicians' offices and community hospitals. For medical graduates, a state-wides system of family practice residency programs provides concentrated opportunity to train in this specialty in one or another of 16 community hospitals in eight cities throughout the state. The College of Medicine promotes and sponsors experimental programs that demonstrate methods of organizing health care of high quality.

Accredited by the American Medical Association and the Association of American Medical Colleges, the College of Medicine meets the requirements of all state licensing boards. Its diploma admits the today to all privileges granted to graduates of U.S. medical colleges before such boards. An other professional programs administered by the College of Medicine are accredited by their respective accrediting bodies.

The M.D. Program

The Doctor of Medicine program at Iowa differs in several significant ways from the traditional format of medical education. Its two-year introductory phase consists of three semesters of basic medical science and one semester of progressive orientation in clinical medicine. The third year consists of a summer session and two semesters of clinical clerkships, in which the student participates in patient care under supervision of staff physicians. The fourth year is devoted to an Internship Study Program in which the student focuses on whatever facet of medical education best relates to his or her personal interests.

The Doctor of Medicine degree candidate's time of study must include attendance during at least four years of instruction. The candidate must have been at least one year at The University of Iowa, must have attained a passing grade in each of the courses, and must have satisfied all other requirements of the College.

Medical Scientist Training Program

The Medical Scientist Training Program is an interdisciplinary program of the College of Medicine and the Graduate College designed to provide individuals for careers in medical science and academic medicine with emphasis on research and teaching.

With support from the National Institutes of Health, the Program provides an integration of the requirements for doctoral training in...
Educational Opportunities Program

The Educational Opportunities Program provides financial and academic assistance to educationally disadvantaged students from groups 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 July 1 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 1.

Final applications will be forwarded to those persons whose AMCAS applications pass a review conducted by the College of Medicine. The fee of $10 must accompany the final application from those who have not completed work in residence at The University of Iowa. This fee is not refundable except to residents of Iowa who are denied admission. Each applicant must also file with the Office of Admissions an official transcript from each college he or she has attended.

An applicant for admission to the College of Medicine must have:

Received the baccalaureate degree; or
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 undergraduate degree.

Prospective students must have earned at least 96 semester hours of credit, or the equivalent, including the following:

Physics: a complete introductory course.
Mathematics: college algebra and trigonometry, or advanced college mathematics for applicants who completed college algebra and trigonometry in high school.
Chemistry: as a minimum, a complete introductory course in organic chemistry.
ordinary following a complete Introductory course in modern general chemical principles.

Biology and Sciences: a complete Introductory course in the principles of animal biology, or zoology and botany (not both-yet alone), and an advanced biology course.

All the foregoing must be taken with appropriate laboratories.

Furthermore 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 will select 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 will be 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 (4.0 system) for all college work undertaken. Because the quality of work in premedical science is basic to success in medicine, special attention will be given by the admissions committee to grades in science and to the level of difficulty of the program undertaken. Where the college offers an option to take courses on a graded or pass-fail basis, it is expected that applicants will take the required science courses on a graded basis.

Preference will be given to applicants with high scholastic standing who are residents of Iowa, but consideration will also be given to outstanding nonresidents especially under the Early Decision Plan. Under this plan a single early application is submitted to one's first choice school by August 15 and the decision is made by October 1. Applicants are required to take the New Medical College Admission Test administered by the Association of American Medical Colleges in May or October of the year preceding admission for which they are seeking admission. Students may make arrangements to apply for the examination through their University's Evaluation and Examination Services.

Personal interviews will be arranged as desired by the admission committee.

Applicants accepted on or prior to February 15 must submit $50 advance payment by March 1. Applicants accepted after February 15 must submit this payment within two weeks after they receive notification of acceptance. The advance payment is credited toward tuition and fees.

All students entering the College of Medicine are required to submit the results of a physical examination. They must also take a tuberculosis skin test and, if it is positive, follow it by a chest x-ray. Both the examination and the skin test should be completed during the year prior to enrollment.

Admission to Advanced Standing

A transfer student may be eligible for advanced standing if he or she meets the admissions requirements, has satisfactorily completed courses qualifying him or her for advanced standing, has achieved high scholastic standing, and submits a statement from the dean of the school from which he or she is transferring, showing work done at that school.

Unclassified Students

Applicants for admission to the College of Medicine who are not degree candidates but want 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 a course, or by action of the faculty upon recommendation of the professor in charge of the course.

Academic Advancement

The promotions committee appointed by the dean and consisting of designated members of the faculty under whom the courses have been taken will, at the close of the academic year, review the accomplishments of the students and determine their eligibility for advancement. In making its decisions the committee will consider the attainment of the student as evidenced by the grade received in each subject (which should reflect the consensus of the departmental staff), his or her seriousness of purpose, his or her conduct, and general fitness for entering the medical profession.
Instructing Students of the Health Care Professions

The Department contributes to the practical education of health care professionals by providing courses in gross anatomy, microscopic anatomy, and neuroanatomy for medical and dental students, gross anatomy and neuroscience for physical therapy students, general anatomy and microscopic anatomy for dental hygiene students, general anatomy for Physician's Assistants, nursing and pharmacy students. In most of these courses, the students learn about the structure of the human body mainly by working in teaching laboratories—dissecting, examining specimens with a microscope and studying specially developed learning materials. Innovative approaches to the study of anatomy, such as the use of programmed texts, videotapes and projection slide programs, have been developed by the faculty.

Graduate Study

The main goal of the graduate program is to prepare students for careers in teaching and research. Job opportunities, primarily in medical colleges, are excellent for anatomy Ph.D.s. Consequently, the graduate program emphasizes the training of Ph.D.s. The M.S. degree is offered only to students in health science programs who take the same from their preclinical student to acquire experience in teaching and research. The M.S. is awarded on the basis of satisfactory completion of coursework in each of the major subdisciplines of anatomy—gross anatomy, microscopic anatomy and neuroanatomy. Teaching experience in one of these areas, a thesis based upon an experimental study, and a comprehensive oral defense of the thesis.

All students in the Ph.D. program acquire in-depth knowledge of gross, microscopic and neuroanatomy by taking courses and teaching in each of these. Since most students who complete the Ph.D. program will find positions in which teaching constitutes a significant part of the responsibility, the Department gives this special consideration. During the first year in the program, a student chooses a research area and becomes affiliated with a faculty member whose research is in that area. Research training is currently found in endocrinology and reproduction, neurobiology, and cell and molecular biology. Early in the third year, the student takes a comprehensive examination assessing his or her ability to analyze, organize and study information, concepts and skills acquired in the first two years of the program. The final examination for the Ph.D. candidate is a critical evaluation of his or her research capability. It consists of a written thesis and an oral thesis defense. The thesis is based on original experimental study done with the guidance of the faculty advisor and four other faculty members.

Admission

Admission to the graduate program follows general Graduate College requirements. Admission to the graduate program is extremely competitive. An applicant's undergraduate background should include advanced mathematics, one year of organic chemistry, at least two biology courses and one year of general physics. Applicants are considered for admission on a competitive basis, taking into account each applicant's record, performance on the Graduate Record Examination Aptitude and Advanced Tests, letters of recommendation and demonstrated career potential. Facilities that apply to take the GRE Advanced Test in biology.

Financial Support

Financial support is available to some students selected for the Ph.D. program. To be considered for financial aid, applications should be completed by February 15.

Facilities

The Department occupies two quarters (over 35,000 square feet) in the Basic Medical Sciences Building on the Health Sciences campus. These quarters house modern lecture and well-equipped research laboratories. The most modern instrumentation is available, including four high-resolution electron microscopes, Balzer evacuation unit, spectrophotometer, cryostats, an automated gamma counting system, etc. Research is increasingly
The Department introduces the second-year medical student to anesthesia as a specialty, helps to develop in the third-year student some concepts and technical skills related to resuscitation, airway management and the care of the preanesthetized patient; and offers the fourth-year student more intense study in any and all phases of the Department. Wide clinical experiences, well-designed seminars and teaching conferences, and ongoing research activities develop in the post-graduated student, or resident, the intellectual depth and skills required of a specialist in anesthesia.

Courses

118:6 Clinical Anesthesia 2 s.h.
Prepared for prior medical students. Clinical patient care in the resuscitation room and ambulatory surgery unit. Involves seminars, ambulatory group discussion sessions.

118:119 Clinical Anesthesia Seminar 3 s.h.
Preparation and presentation of topics in the form of seminars and case histories. Emphasis on the problem of the patient. Development of critical thinking skills. Evaluation of other patient care areas and their interrelationships. Critical thinking and decision-making skills are emphasized.

118:11 Intensive Care 3 s.h.
Evaluation and treatment of critical patients admitted to the intensive care unit. Special emphasis on the evaluation of medical and surgical patients. Focus on the study of the critically ill patient.

115:15 Anesthesia Seminars 4 s.h.
115:16 Anesthesia 1 3 s.h.
115:17 Anesthesia 2 3 s.h.
115:18 Anesthesia 3 3 s.h.
115:20 Anesthesia 4 3 s.h.
115:21 Clinical Anesthesia 3 s.h.
115:22 Clinical Anesthesia 4 3 s.h.
115:23 Clinical Anesthesia 5 3 s.h.
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115:156 Clinical Anesthesia 138 3 s.h.
**Dermatology**

Department Head: John S. Stacke
Faculty: John S. Stacke, Kenneth L. Matthews, Daniel T. O'Brien, John S. Stacke, associate professor Richard J. Zwerba

**The aims of the Department of Dermatology are the training of medical students and training of dermatology residents in the care of patients with skin diseases. In addition, it provides opportunity for the development of research skills in the field of dermatology. This is one of very few dermatology programs in the country with a required rotation for medical students: each third-year medical student spends two weeks in the clinic and attends about 10 one-hour lectures.

A good cross-section of patients is available, due to the mixture of private and clinic patients, including a large number referred from the Student Health Service. Additional patients are seen at the nearby Veterans Administration Hospital.

Various electives are available for fourth-year medical students, including further clinical experience, dermatologic research and special studies.

**Courses**

31 Clinical Dermatology

Dermatology, first medical student year: lectures, independent study materials, clinical experience.

32 Dermatology Elective

Fourth-year medical students spend four weeks in advanced clinical experience, dermatologic surgery and special assignments.

41 Research in Dermatology

Dermatology, 1 P.A.

General principles of medical research, clinical and laboratory techniques involved in dermatologic research.

59 Special Studies on Campus

59 Special Studies off Campus

**Dietetic Internship**

Director: Donald M. Russ-Amy Eddy

Graduate Coordinator: Beverly McCabe

University of Iowa Hospitals and Clinics offers a Dietetic Internship Program which qualifies graduates to take the American Dietetic Association registration examination. The program is fully accredited by the A.D.A.

Courses composing the program are administered by the University of Iowa College of Medicine. The following are required:

50201-202 Nutrition Seminar 2.0 h.
50203-204 Clinical Nutrition 4.0 h.
50205-206 Projects in Nutrition arr.
50209-210 in Hospital Dietary Administration 4.0 h.

The following are recommended electives:

50215 Comparative Nutrition 2.0 h.
50216 Analysis of Food Service Systems 2.0 h.
70211 Nutrition 2.0 h.

Students generally complete the program with 15-17 semester hours of graduate credit. University Hospitals awards a certificate upon completion of the program.

Credit earned in the program may be applied toward an advanced degree, and approved on a case-by-case basis. The deadline for application is March 1.

University Hospitals pays an internship stipend which primarily covers educational and living expenses.

For description of program courses, see the "Nondiagnostic" and "Pediatric" listings in the College of Medicine section of the Catalog.
Endocrinology is an interdisciplinary program involving faculty members from the departments of Anatomy, Biochemistry, Internal Medicine, Obstetrics and Gynecology, Pediatrics, Pharmacology, Physiology and Biophysics, and Zoology.

Degrees are not offered in endocrinology. Students whose primary interest is in endocrinology may enroll in the M.S. and/or Ph.D. programs offered by the departments cooperating in Endocrinology. As a rule, the course of studies for endocrinological emphasis encompasses offerings from several departments, and students may often find it appropriate to avail themselves of facilities of departments outside their parent department. Also, several of the Endocrinology courses are broadly interdepartmental with respect to the teaching staff, which often includes instructors from clinical departments.

Since endocrinology involves microscopic anatomy, physiology and biochemistry, students are expected to be well grounded in these disciplines. Further, since the endocrine system complements and links with the other great integrative system of the body, the nervous system, familiarity with neurobiology is also highly desirable in students of endocrinology.

With the aid of a Biogenical Sciences Development Award from the National Science Foundation, the University has added to its faculty in Endocrinology. Clinical departments have also substantially increased their strength in this area.

Courses
For course descriptions, see the appropriate departmental section.

Anatomy
60:118 Endocrinology for Medical Students 2 s.h.

Biochemistry
99:204 Cellular Endocrinology 2 s.h.

Physiology and Biophysics
72:203 Molecular Endocrinology 2 s.h.
72:204 Cellular Endocrinology 2 s.h.

Zoology
37:120 Comparative Physiology 2-4 s.h.
37:150 Introductory Endocrinology 2 s.h.
37:152 Endocrinology Laboratory 2 s.h.
37:226 Seminar: Endocrinology 2 s.h.
37:228 Seminar: Hormones and Behavior 2 s.h.

Family Practice
Department head: Robert S. Reabold.

The Family Practice program was initiated in answer to the need for more primary-care physicians in Iowa and throughout the nation.

Appropriate coursework in the Department is included throughout the four-year M.D. program. The Department's 18 elective senior rotations give students opportunities for exposure to family medicine through work in affiliated hospitals or connected facilities, in the Department's Oakdale, Williamsburg and University Hospitals offices, and in preceptorships with selected family physicians throughout the state. There is also ample opportunity for independent study during the senior year, 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, graduates of which are eligible for certification by the American Board of Family Practice. This residency trains physicians to provide continuing and comprehensive care to the total family unit, utilizing a concept integrating the patient, allied health professionals and the physician into an efficient and effective health care team.

The program is intentionally flexible to allow 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 subspecialties and community medicine.

The program currently offers 72 individual rotations.

The hospital-based clinical experience is a unique combination of exposure to practice in the University Hospitals, where the patients have been referred by physicians from all over the state, and in various community hospitals, where the inpatient care is of a nature more typical of family practice.

During the first year, a large portion of the program is based at Mercy Hospital in Iowa City, where residents have the opportunity for full participation in the practice—both inpatient and outpatient—of the private physician staff. Rotations are specifically designed to provide breadth of experience, and in the second and third years experience is available at Broadlawns Polk County, Iowa Lutheran and Blairstown Memorial hospitals in Des Moines, St. Joseph Mercy Hospital in Mason City, the Muscatine Community Health Center and the Cedar Oak Family Care Center, and selected teaching practices.

Teaching Fellowship
A two-year teaching fellowship in Family Practice begins each July. Its primary goal is to train physicians for academic roles in Family Practice departments or residency programs. Skills taught include research methodology, administrative and teaching techniques, and modern educational methods.

Special Facilities
The Department office is located in Children's Hospital in the University Hospitals Complex and is the center of Department activities. It contains faculty offices, the University Hospitals Family Practice Office and an inpatient unit. The Department also maintains Family Practice offices at the University's Oakdale Campus, four miles to the northwest, and at Williamsburg, 25 miles west of Iowa City. The Wlliamsburg office is the only medical office in that community. In all offices, patient families are assigned to a resident with
Hospital and Health Administration

The Master of Arts Program is designed for individuals who seek positions of executive leadership in health organizations.

The Doctor of Philosophy Program is oriented primarily to individuals who are interested in careers in teaching and research in the health fields, although individuals seeking senior managerial appointments in health organizations are also encouraged to apply.

The Master of Arts Program

The curriculum for the Master of Arts degree in hospital and health administration requires two years of full-time study. It is aimed at preparing students with the knowledge, attitudes, and skills required to function in responsible managerial positions in hospitals, long-term care institutions, ambulatory care facilities, and other health-related organizations.

In the first year, coursework is designed to familiarize students with the social, political, economic, and legal environments of hospitals and health care institutions. Concepts, tools, and techniques for effective and ethical management, decision-making, planning, and control are introduced. The entire Program is founded upon an interdisciplinary approach which includes exposure to the theoretical and applied aspects of health systems management.

In the second year, the curriculum is oriented to the special interests and career objectives of individual students. An administrative residency may be arranged as an integral aspect of the program of study. Students will be provided with opportunities to concentrate in areas such as hospital administration, health planning, or long-term care administration.

Although a thesis is optional for the master’s degree, students who wish to pursue doctoral studies are encouraged to engage in research leading to preparation of a thesis.

The normal program of study leading to the master’s degree consists of fifty-four semester hours of graduate work. All master’s students must complete eight required courses which represent a “core” set of disciplines and fields of knowledge. The courses are as follows:

80:101 Introduction to Health Care Organization 3 s.h.
80:105 Health Administration 3 s.h.
80:104 Economics of Health Care 3 s.h.
80:106 Legal Aspects of Health and Medical Care 3 s.h.
80:118 Quantitative Applications in Health Care 3 s.h.
80:122 Financial Management of Hospital and Health Institutions 3 s.h.
80:125 The Politics of Health Policy 3 s.h.
80:130 Issues in Health Administration 3 s.h.

In addition to those courses offered by the Program, students are encouraged to take advantage of relevant courses offered by the Department of Preventive Medicine and Enviornmental Health in the College of Medicine, and in the School of Business, Nursing, Pharmacy, Education, and Liberal Arts.

The Doctor of Philosophy Program

The primary purpose of the doctoral program is to prepare scholars who are competent to the pursuit of excellence in teaching and research and in management and policy development in the health fields.

Applicants are generally expected to possess a master’s degree in health administration, medical care organization, public health, or in other fields related to health. Qualified students may be admitted to doctoral study after completion of the baccalaureate.

An option is available to students in the master’s program permits filing a joint program for the M.A. and Ph.D. degrees.

At the doctoral level, the curriculum is organized into four basic fields of study, and students are expected to demonstrate competency in each:

Research Methodology and Quantitative Analysis
Health Systems Management and Evaluation
Politics, Social, and Economic Aspects of Health Care
Student Care Organization

Doctoral students will be exposed to advanced courses in health services management, health policy, and health services research. Doctoral candidates are required to complete at least 90 semester hours of graduate work, and comprehensive examination, and submit an acceptable dissertation.

In addition to satisfying the specific requirements of the Program, the doctoral student must satisfy the requirements of the Graduate College.

Admission procedures are the same for M.A. and Ph.D. students.

Admission

Qualified students with a baccalaureate degree, in any discipline, from an accredited college or university, may apply for admission.

Introductory undergraduate courses in accounting, economics, management, and statistics are pre-requisites. In special cases, at the discretion of the faculty, students may be permitted to complete the prerequisite courses subsequent to admission.

Students must have a 3.0 grade-point average for regular admission, although a student with a grade-point average of 2.5 may be admitted on conditional status upon the recommendation of the faculty.

All students applying for admission are required to furnish completed application forms, official transcripts of all graduate and undergraduate coursework, letters of recommendation, and a brief statement outlining career objectives. Applicants are required to take the Graduate Record Examination and are encouraged to take the Graduate Management Admission Test. A personal interview is usually requested prior to admission.

Applicants are accepted for admission in the fall semester only, and early applications are encouraged. Completed applications must be filed not later than July 15.
Ph.D. Program
A candidate for the Ph.D. must satisfy departmental course requirements determined by his/her advisory committee (minimum requirement: one course in each of four of the six subdisciplines available in the Department, or 15 semester hours of coursework in two different areas); pass a comprehensive examination; and write a thesis and defend it satisfactorily in an oral examination.

Facilities
The Department is housed in the Basic Science Building together with the departmental Anatomy, Biochemistry, Pharmacology, and Physiology and Biophysics. Adequate space and excellent equipment are available for teaching and research.

Graduate Admission
Prospective graduate students should become familiar with the general admission requirements of the Graduate College. Departmental requirements include a review and formal vote by the faculty before a student is admitted. Before beginning graduate work, the student must have completed courses in biology, chemistry (inorganic, organic, quantitative analysis), mathematics (up to calculus) and physics. Exceptions may be allowed, but students admitted without the above coursework must take make-up courses during the first two quarters of graduate school. The student should have a grade-point average of 3.7 or better to be admitted to the graduate program in microbiology.

Courses
01:152 Medical Microbiology
An introduction and methods essential to study of microorganisms, their specific applications in various selected environments and their relevance to infections disease, current concepts of immunology. Prerequisite: admission to College of Medicine.
01:164 Microbiology Laboratory
An advanced course in clinical and laboratory microbiology. Prerequisite: 01:152. Patients see 01:186.
01:153 Microbiology forPhysician's Assistant Students
Introductory course in medical microbiology with emphasis given to the more common encounuuo pathogens, immunology, and procedures used in a physician's office. Prerequisite: registration as physician's assistant.
01:167 Survey of Immunology
A broad survey of immunity in nonprofessional and molecular immunology and application to clinical problems. Prerequisite: 01:152 or equivalent. Prerequisite: admission to College of Medicine. Corequisites: 01:152 or equivalent.
01:187 General Microbiology
Prerequisite: 01:152. A broad introduction to the structure, physiology, morphology, and function of microorganisms. Corequisites: 01:152.
01:188 Infectious Diseases
Prerequisite: 01:152. A broad introduction to the pathogenesis and treatment of infectious diseases. Prerequisite: 01:152 or permission of instructor.
01:189 Problems in Microbiology
Subject to change. Students working toward research problem under supervision of a faculty member. For undergraduate students with advanced background, Prerequisites: 01:152 or equivalent, and consent of instructor.
01:190 General Medical Microbiology
Prerequisite: 01:152. A broad introduction to the structure, physiology, morphology, and function of microorganisms. Open only to medical students.
01:191 Seminar in Medical Microbiology
A course for students and guest speakers on current topics in microbiology and immunology. Open only to medical students.
01:194 Microbiology Laboratory
An advanced course in clinical and laboratory microbiology. Prerequisite: 01:152 or permission of instructor.
01:195 Clinical Microbiology Laboratory
An advanced course in clinical and laboratory microbiology. Prerequisite: 01:152. Students admitted on a basis of need for advanced work in clinical microbiology, or after approval by the Departmental Laboratory. Registration dependent upon departmental group registration. Prerequisites: 01:152.
01:198 Clinical Microbiology Laboratory
Prerequisite: 01:152. An advanced course in clinical and laboratory microbiology. Prerequisite: 01:152. Consent of instructor.
01:197 Experimental Immunotherapy
Exploration of current research in the area of clinical immunotherapy, offered cooperatively with the Department of Biological Sciences.
01:160 Animal Virology
3 s.h.
Laboratory-oriented course designed to provide practical experience with quantitative and qualitative methods for the isolation and identification of viral agents, labelling and identifying purifying antibodies and antigens, evaluating immunotherapeutic and antiviral treatments, and understanding of viral genetics and aspects of DNA virus replication. Prerequisites: 01:152 and/or 01:160, and consent of instructor.
01:109 Animal Pathology
3 s.h.
Basic techniques used in study of natural pathogenic infections of man and lower animals. Prerequisite: introductory course in microbiology. Same as 01:151.

Undergraduate Program
See "College of Liberal Arts."
61:170 Microbial Genetics 3 s.h.
Diseases of insects and their vectors. Carriage supplement to laboratory course 61:175. Credit for both may be taken in the same semester as 61:173. Prerequisites: 61:155 or consent of instructor.

61:171лас Микробиология 3 с.х.

61:172 Expanded Elective: Optical Research Technology 3 s.h.
Advanced level: development and evaluation of new diagnostic procedures, microspectrophotometry, immunoperoxidase and immunohistochemistry. Prerequisite: 61:172 and consent of instructor.

61:173 Elective in Medical Immunology 3 s.h.
Experiential learning: basic principles of immunology, in vitro analysis of cell mediated immunity, specificity determination. Prerequisite: 61:173 or consent of instructor.

61:174 Advanced Genetics 3 s.h.
Genetic analysis of intracellular bacteria. Prerequisite: 61:173 or consent of instructor.

61:175 Advanced Virology
Experiential learning: basic principles of virology, in vitro analysis of specific virus types. Prerequisite: 61:173 or consent of instructor.

61:176 Advanced Microbiology
Experiential learning: basic principles of microbiology, in vitro analysis of specific bacterial types. Prerequisite: 61:173 or consent of instructor.

61:177 Expanded Microbiology 3 s.h.
Advanced laboratory: basic principles of microbiology, in vitro analysis of specific bacterial types. Prerequisite: 61:173 or consent of instructor.

61:178 Topics in Medical Microbiology 3 s.h.
Experiential learning: basic principles of microbiology, in vitro analysis of specific bacterial types. Prerequisite: 61:173 or consent of instructor.

61:179 Expanded Elective: Optical Research Technology 3 s.h.
Advanced level: development and evaluation of new diagnostic procedures, microspectrophotometry, immunoperoxidase and immunohistochemistry. Prerequisite: 61:172 and consent of instructor.

61:180 Research: Microbiology 3 s.h.
Research: advanced level: development and evaluation of new diagnostic procedures, microspectrophotometry, immunoperoxidase and immunohistochemistry. Prerequisite: 61:172 and consent of instructor.

61:181 Research: Advanced Virology 3 s.h.
Research: advanced level: development and evaluation of new diagnostic procedures, microspectrophotometry, immunoperoxidase and immunohistochemistry. Prerequisite: 61:172 and consent of instructor.

61:182 Research: Advanced Immunology 3 s.h.
Research: advanced level: development and evaluation of new diagnostic procedures, microspectrophotometry, immunoperoxidase and immunohistochemistry. Prerequisite: 61:172 and consent of instructor.

61:183 Seminar in Cellular and Molecular Biology 3 s.h.
Seminars: advanced level: development and evaluation of new diagnostic procedures, microspectrophotometry, immunoperoxidase and immunohistochemistry. Prerequisite: 61:172 and consent of instructor.
Neurology

Department Head: Maureen W. Van Allen
Faculty: professors Mark Van Allen, William E. Bell (Pediatrics), Arthur J. Barlow, Barbara Ann (Psychology), Robert L. Brown, Gary M. Van Heese

Assistant professors: Nancy Adams, E. Peter Beach, Enokishi Chine, Mark D. Connell, H. Donald Davies, Lynne L. Dodge, John McGuire, John W. Murphy, Dorothy Schellhaas, Thora Young

Adjunct research scientist: Nancy Miller

Neurology is the branch of medical science concerned with disorders of the brain, spinal cord, and peripheral nervous system, their diagnosis and management. Teaching and postgraduate training in this field is carefully integrated with patient care, having been a significant function of the Department.

The Department offers clinical and clinical neuroscience training to third and fourth-year medical students, contributing to the Doctor of Medicine degree. An active three-year approved residency program qualifying physician trainees for board certification in neurology is a major aspect of departmental activity. Experience in the Division of Clinical Electrophysiology, as well as in pediatric neurology, psychiatry and neuropharmacology in conjunction with these departments is part of the training. The Department of Neurology also offers research opportunity in behavioral neurology to candidates for the degree of Doctor of Philosophy in psychology.

Investigative interests of the staff center upon speech disorders, d l l i c k i l . i g h t . b e h a v i o r a l i n t e r e s t s . i n t e r e s t s i n the nervous system, electrophysiological correlates of disease, and biochemistry of the anticonvulsant drugs. The Department sponsors an active multidisciplinary physiology laboratory. The Department has conducted the Central Registry for the International Cooperative Ankylosis Project, funded by the National Institute of Health.

Courses

6411 Clinical Neurology 2 s.h.

Neurology and related disorders, normal and abnormal functions of the nervous system, clinical diagnosis, management of cerebrovascular disease.

6412 Principles of Neurology 2 s.h.

Neurology, demyelinating, and neuroimmunology. Essentials of neuroimaging as applied to clinical diagnosis.

64291 Research Neurology 2 s.h.

Nuclear Medicine Technology

Director: James H. Crum
Program Coordinator: William A. Laxas

Nuclear medicine technology is the portion of the allied health professions field which encompasses the techniques of using radionuclides in nuclear techniques for studying body processes and imaging organs and diseases. The Nuclear Medicine Department uses a variety of techniques in nuclear medicine to diagnose, stage, and follow the progress of disease, to evaluate and treat patients, and to perform research. The Nuclear Medicine Department is located in the Catholic University of America, Washington, D.C., and is approved by the American Council on Education.

The Nuclear Medicine Technology program is designed to prepare students for entry-level positions in nuclear medicine technology. The program consists of a combination of classroom instruction, laboratory work, and clinical experience. The curriculum includes courses in basic science, chemistry, physics, mathematics, and computer science, as well as specialized courses in nuclear medicine. Students are also required to complete a clinical internship in a nuclear medicine department.

The program is accredited by the Accreditation Council for Allied Health Professions (ACAPH), and the Nuclear Medicine Technology program is approved by the American Medical Association (AMA) for initial certification eligibility. The program also meets the requirements for licensure in the state of Maryland.

The program accepts students from a variety of educational backgrounds, including those with a bachelor's degree in science or a related field. However, students are required to complete prerequisite coursework in biology, chemistry, physics, and mathematics before applying to the program.

The program is offered on a full-time basis and lasts for two years. The curriculum includes both didactic and clinical components, with a strong emphasis on hands-on experience. The program is designed to prepare students for entry-level positions in nuclear medicine technology, and graduates are eligible for initial certification by the American Board of Nuclear Medicine Technologists.
volume demands, led to the development of this new allied health occupation.

Nuclear medical technologists work predominately in hospitals and clinics in all phases of radionuclide use in medicine; daily preparation of radionuclide solutions for use in patients; preparation of patients for organ imaging, blood flow studies, metabolite absorption and utilization studies, or quantification of total body content of a variety of substances; carrying out any of the above studies, including preparing image or data records for physician review; using reagents tagged with radionuclides in a variety of highly specific and sensitive assays of hormones, drugs in blood, urine.

The Program at Iowa

The program in Nuclear Medicine Technology at Iowa is accredited by the Council on Medical Education of the American Medical Association. Fulfillment of the requirements established by the AMA Accreditation Board involves three years of practical work in the College of Liberal Arts and a minimum of 12 months of professional clinical experience, available in the University of Iowa Medical Center.

Upon satisfactory completion of the entire four-year program, the student receives the Bachelor of Science degree with a major in general science and nuclear medical technology, and is eligible for national certification as a nuclear medicine technologist.

Preclinical Program

The required preclinical courses emphasize the physical and biological sciences, which provide a basic background, and which are prerequisites for the subjects and activities of the clinical year. The following is a summary of the prerequisites for acceptance into the Nuclear Medicine Technology Program:

Satisfaction of the College of Liberal Arts general requirements, and the requirements for a general science major:

A minimum of 36 semester hours distributed 16-12-8 among chemistry, zoology and physics;
A minimum of 6 semester hours in mathematics; and
A minimum of 96 semester hours in all coursework with a 2.0 minimum cumulative grade-point average.

Clinical Program

The clinical year is centered in The University of Iowa Hospitals. In terms of time allocation, both classroom and clinical experiences are emphasized. The classroom program covers in depth the clinical or technical specialties of physics of nuclear medicine, basic instrumentation, scanning instrumentation, radionomy, radiopharmaceuticals, electrophoresis, chromatography, liquid scintillation health physics, principles of nursing care techniques, principles of clinical administration, doctor's conference and scan critique, fundamentals of microbiology, clinical chemistry, kinesthetic studies, and medical ethics, in viro clinical experience rotations are established in radiology procedures, clinical radiopharmaceutical laboratory, tracer techniques and research application, thyroid function studies and rectilinear and camera scanning, and in kinetic studies in vivo.

Admission

Prospective students in nuclear medicine technology are encouraged to apply for study and to provide a transcript of previous work as early as possible in the preclinical program, since the class size is at present limited to six students, and prerequisites are increasing in importance. Personal interviews are required. Successful applicants for the clinical training program are notified of their selection at least three months before the beginning of the next clinical class. At present, the 12-month course in depth clinical rotation of students is in September of each year.

Obstetrics and Gynecology

Department Head: R.M. Prie


Assistant Professors: C.A. Filer, E.H. Hughes, R. Mac Kachnich

Instructors: S.S. Boudreaux, C.W. Baudouin, D.W. Baskin, F.J. Zierk

Coursework for M.D. Students

The courses in obstetrics and gynecology are designed to give M.D. students a comprehensive survey of female reproductive problems. This is done through a series of didactic lecture, inpatient and outpatient assignments ward rounds, teaching seminars and special elective courses.

The third-year clerkship (66-6 Clinical Obstetrics and Gynecology) is for the student a core of information he or she will need to be prepared to care for women no matter what his or her career choice.

In the fourth year a variety of electives is available, intended to train the student in the skills of obstetrics and gynecology in a private hospital setting or in a multispecialty clinic. These electives include rotations at Broadlawns Park County Hospital, Des Moines; Ottumwa Clinic and Conway Memorial Hospital, Monroe, Louisiana; Medical Associates, Dubuque; Methodist Hospital, Des Moines and The Gunderson Clinic, LaCrosse, Wisconsin, in addition to clerkships at the University of Iowa hospitals and Clinics.

Residency Program

The Department offers a four-year residency. After passing a written and oral examination, graduates are eligible to be certified as specialists by the American Board of Obstetrics and Gynecology.

During the four years, the resident rotates through the various divisions of the Department and cares for both hospital inpatients and outpatients. Additional training is obtained in prenatal clinics and in Emergency Medical Services (EMS). During the final year, the resident spends time at Methodist and Broadlawns Hospitals in the Milwaukee area, and St. Luke's Hospital in Davenport. In the fourth year, the resident spends time at St. Luke's Hospital in Davenport. In the fourth year, the resident works with obstetricians and gynecologists.

Advanced specialty training after the completion of the residency is available in endocrinology, oncology, and maternal-fetal medicine.

Fellowship Programs

Gynecologic Oncology

The Department offers a two-year fellowship in gynecologic oncology. This involves clinical and research activities. After passing the written and oral examinations, fellows are eligible to be certified by the American Board of Obstetrics and Gynecology for Special Competence in Gynecologic Oncology.
Endocrinology
The Department offers a two-year fellowship in endocrinology. This involves clinical and research activities. After passing the written and oral examinations, fellows are eligible for certification by the American Board of Obstetrics and Gynecology for Special Competence in Endocrinology.

Maternal-Fetal Medicine
The Department offers a two-year fellowship in maternal-fetal medicine. This involves clinical and research activities. After passing the written and oral examinations, fellows are eligible for certification by the American Board of Obstetrics and Gynecology for Special Competence in Maternal-Fetal Medicine.

Courses
84-01 Clinical Obstetrics and Gynecology 8.s.h.
Challanged intensity to develop ponty or in specific specialty taking and physical examination of patients and their gynecologic or obstetric complications, e.g., pregnancy, menopause, and postmenopausal problems. Attention to obstetric and gynecologic problems in early detection and therapy. Conflict and techniques for early detection and therapy of gynecologic cancer.

86 Advanced Obstetric Ultrasonics. Iowa City 4 s.h.
Student workers on new patients at High Risk Obstetric Clinic. Involves in collecting important data, in responsible for working of many of the complications that are common in Obstetric and medical problems, e.g., maternal and fetal complications. Good documentation of diagnostic and therapeutic procedures such as amniocentesis, Ihatogry, and infusion techniques.

87 Advanced Obstetric Ultrasonics. Iowa City 4 s.h.
Advanced Obstetric Ultrasonics. Hospital, Des Moines, Iowa 4 s.h.
Advanced Ultrasonics: A new method in obstetrics, where students are provided: transportation to student's responsibility. Four students, four weeks, offered per year.

88 Advanced Gynecologic Oncology 6 s.h.
89-10 Gynecologic Oncology 6 s.h.
90 Advanced Gynecologic Oncology 6 s.h.
91 Advanced Gynecologic Oncology 6 s.h.
92 Advanced Gynecologic Oncology 6 s.h.
93 Advanced Gynecologic Oncology 6 s.h.
94 Advanced Gynecologic Oncology 6 s.h.
95 Advanced Gynecologic Oncology 6 s.h.
96 Advanced Gynecologic Oncology 6 s.h.
97 Advanced Gynecologic Oncology 6 s.h.
98 Advanced Gynecologic Oncology 6 s.h.
99 Advanced Gynecologic Oncology 6 s.h.
100 Advanced Gynecologic Oncology 6 s.h.

Ophthalmology
Department Head: Frederick C. Boyd
Ph: (319) 337-3121
M. 3373 5th Street
E-mail: fboyd@uiowa.edu

Ophthalmology is a medical and surgical specialty concerned with the diagnosis, treatment, and prevention of diseases of the eye and its adnexa, including corneal and other ocular disorders. Several subspecialties are represented in the Department: corneal pathology and physiology, pediatric ophthalmology, retinal disorders, glaucoma, neuro-ophthalmology, ophthalmology, cornea and external diseases, vascular diseases, plastic surgery, contact lens and refraction service, and ophthalmic photography.

The teaching program is directed toward the training of medical students and resident physicians. It emphasizes a scientific approach to problem-solving in diagnosis and treatment. The residency program lasts three and a half years, and culminates in qualification for the M.A. in Internal Medicine.

The Master of Science degree is not offered as a professional objective but can be pursued in conjunction with a residency program only.

Facilities
The Department maintains several research laboratories: tumor staining, pathology, myology, and electron microscopy. The Department also serves as the Ophthalmology Service and Clinical Services of the University of Iowa Hospitals and Clinics.

Ophthalmo.com

Courses
61-01 Ophthalmology 4 s.h.
61-02 Ophthalmology 4 s.h.
61-03 Ophthalmology 4 s.h.
61-04 Ophthalmology 4 s.h.
61-05 Ophthalmology 4 s.h.
61-06 Ophthalmology 4 s.h.
61-07 Ophthalmology 4 s.h.
61-08 Ophthalmology 4 s.h.
61-09 Ophthalmology 4 s.h.
61-10 Ophthalmology 4 s.h.
61-11 Ophthalmology 4 s.h.
61-12 Ophthalmology 4 s.h.
61-13 Ophthalmology 4 s.h.
61-14 Ophthalmology 4 s.h.
61-15 Ophthalmology 4 s.h.
61-16 Ophthalmology 4 s.h.
61-17 Ophthalmology 4 s.h.
61-18 Ophthalmology 4 s.h.
61-19 Ophthalmology 4 s.h.
61-20 Ophthalmology 4 s.h.
61-21 Ophthalmology 4 s.h.
61-22 Ophthalmology 4 s.h.
61-23 Ophthalmology 4 s.h.
61-24 Ophthalmology 4 s.h.
61-25 Ophthalmology 4 s.h.
61-26 Ophthalmology 4 s.h.
Orthopaedic Surgery

The Department offers two types of postgraduate training—a five-year integrated clinical program in which the trainee resident participates simultaneously in inpatient care, outpatient care, surgery, and sciences related to the musculoskeletal system, and a five-to-six-year program for those interested in full-time academic orthopaedic careers.

The Clinical Program

Trainees enter this program through the National Internship Matching Plan diversity out of medical school. This program consists of a one-year categorical residency program and four years in orthopaedic residency. During the internship year, the trainee gains experience not only in clinical orthopaedics, but in medicine, pediatrics, neurology, surgical specialties, intensive care and anesthesia.

During the following years, residents gain experience in trauma, children's orthopaedics, adult orthopaedics, neumuscular disorders, rehabilitation, prosthetics and orthotics, rheumatology and basic science as related to orthopaedics. The residents take specialized courses in anatomy, bone biology, biochemistry, physiology and pathology.

A weekly seminar covers biomechanics, kinesiology and selected clinical subjects. Residents also attend the Northwestern University courses on lower extremity amputees and prosthetics.

Program for Full-Time Academic Orthopaedics

This program includes the usual training deemed under the clinical program above. In addition to this, 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. This research may be done in one of the five orthopaedic laboratories or in a basic science department.

Departmental Laboratories

The orthopaedic laboratories deal with problems in these major subject areas:

- Biomechanics—The biochemistry of musculoskeletal diseases and their relation to growth and development.
- Biomechanics—In conjunction with the College of Engineering, biomechanical problems of the upper extremity and musculoskeletal biophysics of the hip and the knee, and total joint replacements.
- Cell biology and pathology—Ultrastuctural studies on normal bone, cartilage, tendons and muscles, and on those altered by experiment and disease.
- Tissue transplant, radioactive isotope and metabolic bone diseases—Study bone and cartilage transplantation and various aspects of renal transplantation and bone density in metabolic bone disease.

Facilities

The Department is housed in the Children's Hospital, and the active service in the nearby Iowa City Veterans Administration Hospital.

Facilities include 1,200 beds, an outpatient clinic, a specialty pharmacy, a specialty radiology unit, a brace shop, and physical therapy facilities. Physicians in the outpatient clinic see approximately 100 patients daily.

Specialty clinics deal with such problems as scoliosis, club foot, congenital dislocated hips, nonunion or fracture, metabolic diseases, amputations, hips, knees, hands, neoplasms, and trauma.

Approximately 1,500 major operations are performed each year under auspices of the Department.

The Department provides consulting service to the Hospital School for Handicapped Children, State Services for Crippled Children, and two state schools for the mentally retarded.

Otolaryngology and Maxillofacial Surgery

The Department provides one of the oldest and largest otolaryngology and maxillofacial surgery training programs in the world. Currently there is a full-time faculty of 18, including several members from the audiology, dentistry and speech pathology professions.

The Department's mission is to provide a high-level instructional program in otolaryngology and maxillofacial surgery for medical students and residents. To maintain a broad and in-depth teaching program, the Department's faculty and staff carries a large patient load in head and neck oncology, maxillofacial trauma, transoral laryngeal surgery (such as clasp plates), disorders of the vestibular mechanism, facial plastic surgery, pediatric and general hearing problems, voice problems, parotid and neck masses, sinuses and head and neck infections, and all the areas usually considered otolaryngologic.

In addition to the major otolaryngology and maxillofacial medical-surgical service, there...
A limited number of resident physicians can be accepted each year. Applicants must be graduates of a recognized college of medicine and must have completed at least one year of general surgical training in an approved program.

Courses

80-100 Clinical Otolaryngology 2 sem.
80-101 Head and Neck Otolaryngology 1 sem.
80-102 Otolaryngology 1 sem.
80-153 Physiology of Speech 1 sem.
80-154 Basic Sciences of Facial Plastic and Reconstructive Surgery 4 sem.
80-159 Special Clerkship in Otolaryngology 2 sem.
80-199 Basic Sciences in Otolaryngology 4 sem.
80-200 Special Clerkship in Otolaryngology 4 sem.
80-201 Research Techniques in Otolaryngology 2 sem.

Laboratory course designed to familiarize student with research methodology, equipment and procedures related to research in otolaryngology. Required of all students.

80-210 Clinical Otolaryngology 4 sem.
80-211 Clinical Otolaryngology, Rhinology 4 sem.
80-212 Clinical Otolaryngology, Head and Neck Surgery 4 sem.

Some of the requirements for the Master of Science degree are met during medical school. The student must earn at least 30 semester hours of credit, 15 of which must come from the basic science courses, and must present a thesis.

Students capable of additional work may also take elective courses.

Pathology

Department head: George O. Pochi Professor of Pathology, University of California, San Francisco, Calif.

80-250 Special Studies in Pathology 2 sem.
80-254 Special Studies in Pathology 2 sem.
80-256 Special Studies in Pathology 2 sem.
80-260 Special Studies in Pathology 2 sem.
80-265 Special Studies in Pathology 2 sem.
80-270 Special Studies in Pathology 2 sem.
80-275 Special Studies in Pathology 2 sem.
80-280 Special Studies in Pathology 2 sem.
80-285 Special Studies in Pathology 2 sem.
80-290 Special Studies in Pathology 2 sem.
80-295 Special Studies in Pathology 2 sem.
80-300 Special Studies in Pathology 2 sem.
80-305 Special Studies in Pathology 2 sem.
80-310 Special Studies in Pathology 2 sem.
80-315 Special Studies in Pathology 2 sem.
80-320 Special Studies in Pathology 2 sem.
80-325 Special Studies in Pathology 2 sem.
80-330 Special Studies in Pathology 2 sem.
80-335 Special Studies in Pathology 2 sem.
80-340 Special Studies in Pathology 2 sem.
80-345 Special Studies in Pathology 2 sem.
80-350 Special Studies in Pathology 2 sem.
80-355 Special Studies in Pathology 2 sem.
80-360 Special Studies in Pathology 2 sem.
80-365 Special Studies in Pathology 2 sem.
80-370 Special Studies in Pathology 2 sem.
80-375 Special Studies in Pathology 2 sem.
80-380 Special Studies in Pathology 2 sem.
80-385 Special Studies in Pathology 2 sem.
80-390 Special Studies in Pathology 2 sem.
80-395 Special Studies in Pathology 2 sem.
80-400 Special Studies in Pathology 2 sem.
80-405 Special Studies in Pathology 2 sem.
80-410 Special Studies in Pathology 2 sem.
80-415 Special Studies in Pathology 2 sem.
80-420 Special Studies in Pathology 2 sem.
80-425 Special Studies in Pathology 2 sem.
80-430 Special Studies in Pathology 2 sem.
80-435 Special Studies in Pathology 2 sem.
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80-485 Special Studies in Pathology 2 sem.
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80-505 Special Studies in Pathology 2 sem.
80-510 Special Studies in Pathology 2 sem.
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80-590 Special Studies in Pathology 2 sem.
80-595 Special Studies in Pathology 2 sem.
80-600 Special Studies in Pathology 2 sem.
80-605 Special Studies in Pathology 2 sem.
80-610 Special Studies in Pathology 2 sem.
The Department offers basic courses in pathology to various health science students, a clinical training program in medical technology, a master's degree program, specialty training leading to certification in anatomic and clinical pathology by the American Board of Pathology, and a postdoctoral training program in clinical chemistry.

Clinical Training in Medical Technology

The Medical Technology Program at Iowa is sponsored through the cooperation of the College of Medicine, College of Liberal Arts, University of Iowa Hospitals and Clinics, and the Iowa City Veterans Administration Hospital. Satisfactory completion of this program qualifies the student for the Medical Technologists Board of Registry examination for certification as medical technician (American Society of Clinical Pathologists). The program is approved by the Council on Medical Education of the American Medical Association and by the National Accrediting Agency for Clinical Laboratory Sciences.

The program comprises 12 consecutive months of didactic and practical instruction. The first six months are devoted to lectures, laboratory experience, demonstrations, and seminars covering theory and technique in clinical laboratory science. During the last six months, the student rotates through the clinical laboratory facilities of the University of Iowa Hospitals and Clinics and the Iowa City Veterans Administration Hospital, and attends additional lectures.

The program is limited to 32 students. A class of 16 students is admitted each July and January. Admission is on a competitive basis. Applications close December 31 for the classes beginning in July and August 31 for classes beginning in January.

Prior to admission, students must complete:
- 94 semester hours of college study
- 16 semester hours of chemistry, including qualitative analysis, quantitative analysis, organic chemistry, and biochemistry
- 6 semester hours of mathematics, including a course in statistics
- 16 semester hours of biology including general zoology, microbiology, physiology, and parasitology
- General physics, biostatistics, and genetics

Minimum cumulative grade-point averages of 2.0 overall and 2.5 in science are generally required (A=4).

An applicant who will enter the clinical training program before completing work toward a bachelor's degree must be able, by completing the clinical training program, to satisfy all University of Iowa requirements for the Bachelor of Science degree in general science.

An applicant who will enter the program as an undergraduate student must meet the general admission requirements of the University's College of Liberal Arts, and should consult with the University as soon as possible to plan preclinical studies to meet all requirements.

Because the enrollment capacity of the clinical training program is limited, the University permits students completing preclinical studies at Iowa to satisfy degree requirements by completing clinical studies in other approved medical technology programs, with prior written approval from the College of Liberal Arts.

Graduate Program

The graduate program in pathology is sufficiently flexible to accommodate students with varied backgrounds. Students with B.S. degrees in chemistry, biochemistry, biology, zoology, medical technology, as well as medical and dental degrees, are encouraged to apply.

In addition to Graduate College requirements, the Pathology Department requires a 3.0 GPA in science courses and a combined verbal and quantitative GRE score above 1200. A personal interview is required before final acceptance into the program.

All programs involve components of teaching, patient care and research. These activities are structured in the teaching programs of the Department, the service laboratories of the Department and the University Hospitals, and the research laboratories of selected faculty members.

All degrees require a thesis.

Although the M.S. program is flexible and open to students with varied backgrounds, two structured degree programs are emphasized:

One track is designed to provide a research background for academically oriented resident physicians, or the occasional medical or dental student who may wish to pursue graduate training in pathology in conjunction with the professional school program.

The other track is especially appropriate for medical technologists to enhance their training, usually by subspecialization in an area of laboratory medicine.

Special Programs

The Department is approved for 16 training positions in pathology, covering a training span of up to five years. The programs are designed to utilize the patient population of both University Hospitals and Clinics, and the Iowa City Veterans Administration Hospital.

There is systematic rotation through the various laboratory services, including surgical pathology, autopsy pathology, cytopathology, clinical biochemistry, medical microbiology, hematology and blood bank. Adequate opportunity is afforded for concentrated study in such subspecialties as neuropathology, dermatopathology, and gastrointestinal pathology, and special pathology of the head and neck region.

To provide these special experiences, the faculty includes members who have special interests in blood coagulation and its disorders, and diseases of the nervous system, gastrointestinal tract, skin, lungs, hematopoietic tissues, heart and blood vessels, as well as medical microbiology, clinical biochemistry, hematology and blood banking.

A postdoctoral training program in clinical biochemistry is offered. This program is approved by the American Board of Clinical Chemistry and is open to Ph.D. biochemists or chemists.

In addition, a limited number of externships and clerkships are available to predoctoral students.

Facilities

The Department has laboratories equipped for histopathology, histochemistry, electron microscopy, tissue culture, special chemis- try, virology and blood coagulation, as well as the usual facilities for anatomic and clinical pathology. Our recently remodeled Pathology Learning Center has areas for seminars, independent study, multimedia learning activities and small group discus- sions.
availables for the child presenting with developmental disabilities, cerebral palsy, and mental retardation.

Courses

12.2 Critical Pediathts 5 s.h.
Principles and practices of health maintenance and treatment of children with chronic disabili-
ties, demensionation, participation in medical care, daily rounds, viro logic, emphasis on diagnosis and evaluation, nutrition, biobehavioral, intervention, and management of issues affecting families. For third-year medical students.

12.3 Introduction to Maternal Gesis 2 s.h.
197l: Maternal Health, Care and Development I I
Post-partum nurse anesthetist clinical aspects of growth and maternal care, psychosocial issues, and nutrition, including unit, program, clinical activities, support to family, research issues.

10.5 Community Pediatrics 8 s.h.
Exposure to private practice of pediatric students in both general and subspecialty practices in urban, rural, and hospital care of children.

10.6 Neonatal Pediatrics (In Maternal Hospital, 2 s.h.
Work in continuity of care, recent experience is care of patients in work, daily practice and in special problems related to children’s hospitals.

10.9 Pediatric Endocrinology 2 s.h.
Basic concepts of endocrinology and clinical aspects in management problems and care issues seen in children.

10.11 Pediatric nephrology 2 s.h.
Basic concepts of endocrinology and clinical aspects in management problems and care issues seen in children.

10.16 Pediatrics in Child Development 2 s.h.
Basic knowledge of normal growth and development problems in children; common problems in children.

10.19 Pediatric Cardiology 2 s.h.
Exposure to all aspects of children, including cardiac evaluation and intervention in children, pediatric, and adult cardiology.

10.23 Evaluation of Child Behavior 2 s.h.
Tuberculosis with emphasis on techniques and management of chronic problems in children.

10.24 Pediatric Endocrinology and Diabetes 2 s.h.
Fibrillation with emphasis on diabetes problems in children, including diabetic care in children, insulin-dependent diabetes.

10.25 Developmental Disabilities 2 s.h.
Intensive care with emphasis on intellectual disabilities, mental retardation, and special care issues in children.

10.27 Nephrology 2 s.h.
Post-partum nurse anesthetist clinical aspects of growth and maternal care, psychosocial issues, and nutrition, including unit, program, clinical activities, support to family, research issues.

12.21 Pediatric Allergy 2 s.h.
Exposure to all aspects of children, including care in children, pediatrics, and adult cardiology.

12.24 Pediatrics in Child Development 2 s.h.
Basic knowledge of normal growth and development problems in children; common problems in children.

1970 Pediatrics Children’s August 2 s.h.

1971 Pediatric Pediatrics 2 s.h.
Exposure to all aspects of children, including care in children, pediatrics, and adult cardiology.

1972 Pediatric Pediatrics 2 s.h.
Exposure to all aspects of children, including care in children, pediatrics, and adult cardiology.

1973 Pediatric Pediatrics 2 s.h.
Exposure to all aspects of children, including care in children, pediatrics, and adult cardiology.

1974 Pediatric Pediatrics 2 s.h.
Exposure to all aspects of children, including care in children, pediatrics, and adult cardiology.

1975 Pediatric Pediatrics 2 s.h.
Exposure to all aspects of children, including care in children, pediatrics, and adult cardiology.

1976 Pediatric Pediatrics 2 s.h.
Exposure to all aspects of children, including care in children, pediatrics, and adult cardiology.

1977 Pediatric Pediatrics 2 s.h.
Exposure to all aspects of children, including care in children, pediatrics, and adult cardiology.

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Exposure to all aspects of children, including care in children, pediatrics, and adult cardiology.
Graduate Study

Pre-requisites for graduate study include undergraduate background in chemistry, biology and mathematics, and a high level of past performance is expected of all applicants.

M.S. Program

In cooperation with clinical departments within the College of Medicine, a Master of Science degree program in clinical pharmacy is available to applicants who already hold the Doctor of Medicine degree. The specific objectives of these programs is to provide increased emphasis on, and training in, the science of clinical pharmacy for residents in various clinical specialties.

Completion of the program requires a minimum of two full years. The following core curriculum is mandatory unless specifically waived by the Pharmacology faculty:

63:187 Biometrics and Bioeaselye
71:208 Biochemical Pharmacology
71:100 Chemobiodynamics
71:103 Pharmacology and Toxicology
71:218 Clinical Toxicology
71:204 Pharmacology Seminar
71:203 Pharmacology Research
71:217 Special Topics in Pharmacology
71:105 Pharmacology for Health Sciences

Additional courses may be taken as appropriate to the progress of the trainee.

At the completion of the final year, the candidates will be eligible for a Master of Science degree in pharmacy provided he or she has demonstrated sufficient proficiency in basic research, has passed the qualifying examination (written and oral) and has satisfied the thesis requirements (preparation and defense).

Ph.D. Program

Graduate students are expected to be prepared for the written and oral qualifying examinations for the Doctor of Philosophy degree at the end of two and one-half years of study, after completion of these required courses:

71:100 Chemobiodynamics

96:120 The Chemistry of Biological Materials and/or
96:130 Metabolism
72:110 Neurobiology and Behavior
72:212 Medicinal Pharmacology
72:110 Endocrinology for Medical Students
71:101 Pharmacology for Health Sciences

93:187 Biometrics and Bioassays
71:103 Pharmacology and Toxicology
71:208 Biochemical Pharmacology
71:203 Pharmacology Research
71:204 Pharmacology Seminar
71:207 Pharmacology of Excitable Cells

One or more graduate biochemistry courses:

The student must complete at least one course, appropriate to his or her interest, beyond those listed above, when more than one may be required by individual faculty research advisors.

There is no experimental foreign language requirement.

Sometime during the first year of study the student selects a faculty research advisor. Students are encouraged to obtain a maximum of laboratory research experience during the first two years. After successful completion of the Ph.D. comprehensive exam, usually at the end of two or one-half years, the student embarks on a thesis or his Ph.D. thesis course. Thesis research usually requires two years beyond the comprehensive exam.

The Doctor of Philosophy degree is awarded upon satisfactory preparation and defense of the thesis in an oral examination.

Departmental Financial Aids

Training grants are available for graduate and postdoctoral students.

Courses

71:1000 Chemobiodynamics

97:110 Pharmacology I

97:113 Pharmacology II

97:130 Pharmacology III

97:140 Pharmacology IV

97:150 Pharmacology V

97:160 Pharmacology VI

97:170 Pharmacology VII

97:180 Pharmacology VIII

97:190 Pharmacology IX

100:100 Chemistry of Chemicals and Physical Agents

100:110 Chemistry of Pharmaceutical Agents

100:120 Chemistry of Biological Materials

100:130 Metabolism

100:140 Pharmacology of Excitable Cells

100:150 Pharmacology of Health Sciences

100:160 Pharmacology of Neurology

100:170 Pharmacology of Endocrinology

100:180 Pharmacology of Neurochemistry

100:190 Pharmacology of Immunology

100:200 Pharmacology of Pathology

100:210 Pharmacology of Genetics

100:220 Pharmacology of Microbiology

100:230 Pharmacology of Virology

100:240 Pharmacology of Bacteriology

100:250 Pharmacology of Parasitology

100:260 Pharmacology of Toxicology

100:270 Pharmacology of Pharmacology

100:280 Pharmacology of Pharmacology

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100:970 Pharmacology of Pharmacology

100:980 Pharmacology of Pharmacology

100:990 Pharmacology of Pharmacology

100:1000 Chemistry of Chemicals and Physical Agents
Physical Therapy

Program director: Gary L. Smith
Assessment director: Gary L. Smith
Co-director: Gail F. Smith
Application deadline: January 15
Inquiries: call (509) 319-5375
Contact: Gail F. Smith, DPT
Address: 300 West Mall
Spokane, WA 99258
Phone: (509) 319-5375
Fax: (509) 319-5564
Email: gail.smith@gsu.edu

Program Information:
The primary and secondary entry programs are designed to prepare students for the practice of physical therapy. The curriculum includes courses in anatomy, physiology, biomechanics, assessment, intervention, and professional issues. Students are required to complete a clinical internship in a hospital setting. Graduates are eligible to sit for the national certification examination for physical therapists.

Admission Requirements:
- Bachelor's degree from an accredited institution
- GRE scores (required)
- A minimum GPA of 3.0
- Letters of recommendation
- Personal statement
- Clinical experience

Professional Program

The physical therapy program at the University of Iowa is fully accredited by the American Physical Therapy Association and the Council on Medical Education of the American Medical Association. Successful completion of the curriculum qualifies candidates for the Professional Examination Service (P.E.S.) test for licensure in Iowa and most other states.

The two-year professional curriculum consists of:

Semester I

- 60:100 Human Anatomy 4 s.h.
- 101:113 Kinesiology 3 s.h.
- 101:31 Therapeutic Physical Agents 3 s.h.
- 101:141 Introduction to Physical Therapy 3 s.h.
- 69:203 Principles of Human Pathology 2 s.h.
- 62:161 Introduction to Biostatistics 3 s.h.

Semester II

- 60:100 Human Anatomy and Neuroanatomy 4 s.h.
- 101:113 Therapeutic Exercise I 4 s.h.
- 101:118 Clinical Observation 2 s.h.
- 101:122 Emotional Aspects of Disability 2 s.h.
- 101:190 Electrotherapy 2 s.h.

Semester III

- 101:101 Introduction to Clinical Medicine and Clinical Sciences 4 s.h.
- 101:102 Fundamentals of Orthopaedics and Clinical Sciences 4 s.h.
- 101:111 Therapeutic Exercise II 4 s.h.
- 101:113 Principles of Neurology and Clinical Sciences 3 s.h.
- 101:119 Clinical Education and Rehabilitation 2 s.h.
- 101:103 Scientific Inquiry 1 s.h.
- 101:121 Physical Therapy Administration 1 s.h.
- 101:118 Radiology for Physical Therapists 1 s.h.

Semester IV

- 101:120 Clinical Internship 4 s.h.

Admission to the Professional Program

A new class is admitted each fall. Students may enter the program either following their junior year of college or while earning a bachelor's degree. A student entering the program after his or her junior year of undergraduate study must resolve all requirements for the Bachelor of Science degree in general science by successfully completing the first year of the physical therapy program.

Undergraduate students who complete their preprofessional work at other colleges or universities must meet the general admission and graduation requirements of the University of Iowa College of Liberal Arts. They should consult with the University 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 two-year preprofessional program.
Required Courses

101:381 Thesis Physical Therapy 4 s.h.
101:212 Medical Instrumentation 3 s.h.
63:167 Biomechanics and Biomechanics 3 s.h.
101:240 Cardiopulmonary Therapeutics 3 s.h.
101:275 Evaluation of Selected Neurological Disorders 3 s.h.
101:282 Psychomotor Teaching Methods and Design 3 s.h.
and/or
01:282 Clinical Educational Practicum 3 s.h.
and/or
101:256 Practicum in Research 3 s.h.
110:220 Seminar Physical Therapy 1 s.h.
110:336 Analysis of Scientific Literature 2 s.h.

Recommended Courses

110:325 Independent Study arr.
271:153 Advanced Anatomy and Kinesiology 2-4 s.h.
69:203 Principles of Human Pathology 3 s.h.
110:265 Electromyography in Rheology and Biomechanics 3 s.h.
71:252 Facilitation of Learning in Health Science Education 3 s.h.
79:348 Data Processing 3 s.h.
71:150 Educational Measurement for the Classroom Teacher 2-3 s.h.
63:71 Problems in Preventive Medicine arr.
271:030 Biomechanics of Human Motion 3 s.h.
273:312 Selected Issues in Information Processing and in Motor Control 3 s.h.
273:333 Psychology of Learning 3 s.h.
271:290 Advanced Electrotherapy and Electrodiagnosis 2 s.h.
71:150 Drugs: Their Nature, Action, and Use 2-2 s.h.
110:335 Radiology for Physical Therapists arr.
110:335 Independent Study arr.
110:337 Research in Therapeutics arr.

Elective Courses

Students are encouraged to seek out appropriate elective courses.

Facilities

Persons associated with the program have access to the physical therapy and orthopaedic-biomechanical laboratories, and to the biomechanics laboratory in the College of Engineering. These laboratories are equipped with instrumentation—computers, oscilloscopes, electroanatomical, electromyograms, electromechanical, force plate, high-speed cameras, motion analyzers, accelerometer, force table, Os and Co2 analysis, bicycle ergometer, treadmill—needed to solve movement problems associated with the human in the normal and abnormal states. The master's degree program in physical therapy is an integral part of collaborative studies of medical doctors and orthopedic, engineering, neurology, cardiology, physiology, anatomy, and pediatrics; the master's degree program and the Physical Therapy Clinic interact in terms of collaborative teaching, patient care and research.

Financial Support

The program strives to provide financial assistance for all full-time students.

Admission

To be considered for admission to the master's degree program, the applicant must be a graduate of an approved professional program of physical therapy, meet the admission requirements of the University of Iowa Graduate College, and pass the Professor's licensure examination for physical therapists. Clinical experience is desirable. Deadlines for written applications are February 15 and May 15.

Doctor of Philosophy Program

The physical therapy program coordinates a Ph.D. program for physical therapists. Prerequisites to the program are calculus, licensure as a physical therapist, and a master's degree. The purpose of the program is similar to the master's degree program except that greater breadth and depth in research and teaching capabilities are emphasized for one area of physical therapy specialization—musculo-
under defined rules, the physician's assistant may perform without a physician's supervision, and thus must be able to exercise independent judgment based on formal medical knowledge. The demand for physician's assistants is increasing in all types of health care settings, particularly as the role becomes more clearly defined.

The Iowa Program

The program at Iowa is approved by the American Medical Association's Joint Review Committee on Educational Programs for the Assistant to the Primary Care Physician, the Iowa Board of Medical Examiners, and the Association of Physician's Assistant Programs. Completion of the program qualifies students for the National Certifying Examination for Primary Care Physician's Assistants. Successful completion of the National Certifying Examination is a prerequisite to registration in Iowa.

The program at the University of Iowa emphasizes the practice of general medicine in a setting designed to foster the use of health care teams. In addition to opportunities with private practicing physicians, a network of primary care clinics is being developed in the state to serve communities with an integrated health care system. These family clinics will integrate the physician's assistant into the medical delivery team with physicians, health technicians, public health nurses, clinic nurses, and social service personnel.

The Physician's Assistant Program is an integral part of the College of Medicine. The first year of the Program is taken at the University of Iowa Health Center. A major portion of the second-year clinical work occurs throughout the state, in settings where primary care is practiced.

The Program is 24 months in length and is broadly divided into three phases. The initial, didactic phase consists of seven months of course work which builds in a number of basic science areas. When appropriate, related subjects are integrated to provide sequential lecture, laboratory and clinical experiences. A seminar course specifically designed to the history and development of the physician's assistant profession is also offered during this year.

The second phase, introduction to clinical medicine for Physician's Assistant Students, is an informational bridge to clinical medicine, and develops the skills of history-taking, physical diagnosis and interviewing techniques.

The clinical, phase consists of supervised rotations in required and elective specialties. These rotations of two, four, or six weeks duration allow the students to apply the knowledge gained in the didactic and practical aspects of the program and to develop additional skills through individual, supervised instruction. The rotations are designed to provide opportunities for each student to become proficient in the history-taking and physical examinations on patients with various conditions. Inpatient clinical training is provided by the University of Iowa Medical Center and affiliated hospitals, as well as the other medical care clinics at Muscatine, Davenport, Mason City, and Des Moines. Students may add additional clinical experience through placement with selected preceptors involved in clinical work in private practice or in community hospitals.

The didactic and clinical phases of the program emphasize primary health care delivery and the use of physician's assistants in this type of service team. The program is integrated into the teaching of the College of Medicine, thus permitting a symbiosis to develop between various medical and health care professional students.

Professional Curriculum

First Year

71:125 Pharmacology for Health Sciences: Physician's Assistant Students 5 s.h.
50:105 Law and Medicine for Physician's Assistant Students 1 s.h.
65:11118 Anatomy for Physician's Assistant Students 5 s.h.
65:11018 Principles of Human Pathology 4 s.h.
65:130 Clinical Pathology for Physician's Assistant Students 2 s.h.
72:164 Human Physiology for Physician's Assistant Students 4 s.h.
99:184 Biochemistry for Physician's Assistant Students 3 s.h.
117:101 Seminar for Physician's Assistant Students 2 s.h.
50:121 Introduction to Clinical Medicine for Physician's Assistant Students 20 s.h.

Second Year

Required clinical rotations:
70:556 Pediatrics for Physician's Assistant Students 6 s.h.
75:555 General Surgery for Physician's Assistant Students 6 s.h.
78:550 Internal Medicine for Physician's Assistant Students 6 s.h.
115:558 Family Practice I for Physician's Assistant Students 6 s.h.
115:558 Family Practice II for Physician's Assistant Students 6 s.h.
66:100 Obstetrics and Gynecology for Physician's Assistant Students 6 s.h.
73:100 Psychiatry for Physician's Assistant Students 4 s.h.
Elective clinical rotations, selected from the following:
70:102 Pulmonary Elective for Physician's Assistant Students 6 s.h.
70:104 Emergency Room Elective for Physician's Assistant Students 6 s.h.
70:120 Orthopedics for Physician's Assistant Students 6 s.h.
115:500 Family Practice Elective for Physician's Assistant Students 6 s.h.
70:100 Internal Medicine Elective for Physician's Assistant Students 6 s.h.
82:628 Dermatology for Physician's Assistant Students 6 s.h.
74:500 Radiology for Physician's Assistant Students 6 s.h.
75:110 Surgery Elective for Physician's Assistant Students 6 s.h.
78:105 Rehabilitation Elective for Physician's Assistant Students 6 s.h.
78:100 Urology Elective for Physician's Assistant Students 6 s.h.

Faculty

All courses in the physician's assistant professional program are taught by College of Medicine departmental faculty members. In addition, specialists and hospital employees are used to provide a broader base of information. The program is administered by the Office of the Dean of Medicine, and includes medical faculty members, practicing physicians in private practice, health care administrative personnel and students currently enrolled in the program.

Under the direction of the Program Director, the Program is administered by the Office of the Dean of Medicine, and includes medical faculty members, practicing physicians in private practice, health care administrative personnel and students currently enrolled in the program.
Expenses
In addition to tuition, room, board, books, supplies and other general University expenses, students in the physiology and biophysics major also pay the purchase of their uniforms and diagnostic equipment. Microscopes are not required.

Admission
Requirements
To be eligible for admission to the physiology and biophysics major, an applicant must have completed 60 semester hours of college study, including:

- College of Liberal Arts general education requirements in rhetoric, physical education, and the history and culture of the world.
- A complete introductory course in inorganic and organic chemistry;
- A complete introductory course in zoology or animal biology.
- It is strongly recommended, although not required, that the applicant's high school background include algebra, trigonometry and physics.
- Applicants who have already completed an associate's degree or a two-year associate degree at an accredited college or university automatically meet the Liberal Arts general education requirements.
- The applicant must have achieved at least a 2.5 grade-point average (A = 4) on the last 60 semester hours of college coursework undertaken.
- The admissions committee gives special attention to the applicant's performance in science courses.

Satisfaction of the above admission requirements does not ensure acceptance into the Physician's Assistant Program. The admissions committee evaluates the applicant's qualifications and considers their application in the context of the applicant's performance in college coursework.

Admission Procedures
A new class begins each June. Applications are accepted beginning one year in advance, and close January 15. Each applicant must complete the Physician's Assistant Program application and submit at least three letters of recommendation.

Course

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title for Physician's Assistant Students</th>
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<tr>
<td>0.3 a. h.</td>
<td>requires medical and group session dealing with the history and development of physician's assistant profession. Graduates take courses in the physician's assistant program.</td>
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Physiology and Biophysics

Department Chair: D.E. Fellows

Faculty: Antman, Francine M.; Moul, Linda; Madan, Robert; Mann, G.; Ogden, J.; Pietenpol, J.; Vosson, S.; Boardman, Harold Park, Dan Phillips, Brian Schneider, Harold Silverman, Charles Whitaker, Charles West, associate professor Dan Rafti (Physiological Education), Charles Hing, Daniel P. Sykes (Surgery), Gordon Seale, John D. Thompson, assistant professor Kurt Rafti, Cheryl Dawson, Felix Ehrmann, Rafael Jaramillo, Richard Menney, Donald F. Miller.

The Department offers a program of graduate study leading to the Doctor of Philosophy degree. This program requires four or more years by completion. In addition, a two-year program leading to the Master of Science degree with a thesis is available. The Department participates in the Medical Scientist Training Program (complied M.D.-Ph.D. program) conducted under the auspices of the Graduate College and the College of Medicine. It also takes part in the master's education of medical, dental, pharmacy, physical therapy, nursing, and physician's assistant students.

Graduate Study

The graduate program of the Department is designed to provide fundamental knowledge of the processes at cellular and organ levels as well as an opportunity for advanced study in major areas of physiology and biophysics. The program places strong emphasis on the development of research skills and their application in the conduct of original research.

The beginning student is guided and advised by the director of graduate studies, who keeps in planning a program of formal coursework and graded research experience for the first two years. In addition to coursework in advanced general physiology and biophysics, specialized formal study is offered in membrane, cardiovascular, medicine, muscle, respiration, gastrointestinal, renal, environmental, and cellular physiology, neurobiology, and bioinstrumentation. 

Physicians may also elect courses in other departments.

Upon completion of the required advanced coursework and acceptable performance on a comprehensive examination in physiology and related areas—usually after two years of study—the student defends a full time to original research. This culminates in the writing of a dissertation embodying a significant contribution to scientific knowledge and the defense of the dissertation in a final oral examination.

All degree candidates are expected to have suitable experience as classroom assistants and research assistants at the National Institutes of Health.

Financial Aid

Full-time graduate students in the doctoral program are usually awarded teaching aid with continuing support contingent upon satisfactory progress and the availability of funds.

Facilities

The Department of Physiology and Biophysics occupies two floors reserved to research and teaching in the Biologic Sciences Building, and has additional laboratory facilities in the nearby Climate Center. In addition to specialized equipment in individual research laboratories, the Department has modern digital computer and computer graphics systems, electron microscope, a biological and electron microscope, a cell culture facility, as well as darkroom and machine shop facilities. Through the first two years, graduate students are provided with individual study space adjacent to the departmental reading room, which supplies resources available at the Health Sciences Library.

Admission

An applicant must complete undergraduate studies in an accredited institution and have an overall and science grade-point average....
sanitation, industrial hygiene, biometry, health services research, comparative medicine, agriculture medicine, and many other areas related to the health of communities. Many graduates of the Department have gone on to national and international achievement in public health.

In 1955 the Department sponsored the establishment of the Institute of Agricultural Medicine, the first in the western hemisphere dedicated to the study of the occupational health problems of the agricultural worker. The various programs of the Institute provide practical training for students of the health professions as well as for medical students at the graduate and postgraduate levels, and reflect a special interest in our rural environment.

The Department has an expanding and comprehensive biostatistics program, which offers both graduate and undergraduate instruction. Besides individual research in statistical methodology, extensive collaborative research is done with other departments, particularly in the College of Medicine. Departmental programs are enhanced through affiliations with the State University, the University of Pennsylvania, the University of Illinois, the University of Michigan, and many other regional health care delivery programs. Medical epidemiology while also linked to the clinical activities in the University Hospital, is primarily oriented toward the community. Teaching and research are concerned with state educational programs, but the emphasis is on application to community health problems. Areas of specific interest include the organizational and delivery of health services, the descriptive, etiologic and control of both acute and chronic diseases as well as clinical epidemiology. There is a special emphasis within the Department on the epidemiology of cardiovascular diseases and cancer.

Examples of special ongoing programs include assistance in the development of evaluation of public primary care health centers, conduct of a summer medical student primary care program for migrant farm workers, surveys of health service utilization behavior in Iowa communities, cancer research in the Department of Pediatrics, screening programs, cancer epidemiology through the Iowa State Cancer Registry and the Iowa Cancer Epidemiology Research Center (both based within the Department), the epidemiology of human disease associated with environmental factors, development of the environment bowls, the study of the relationship of work accidents, the study of the treatment of cancer, and many others. Consultation on epidemiologic problems is given widely in diverse areas of research and applied community activities.

The Master's program offers a degree with an emphasis on environmental health, biometry, epidemiology, or a general track for those who wish to pursue a health profession. The Ph.D. program is available with an emphasis in epidemiology, biometry, environmental health, or health services research. A limited amount of financial assistance is available within the Department.

Admission
Application deadlines are January 1 and October 1. No entering students are admitted for the spring semester. Minimum GPA requirements are 2.75 for admission to the master's program, 3.0 for the Ph.D. The GRE combined (verbal and quantitative) score of 550 is needed. The applicant must have an undergraduate major or course background in science or mathematics, depending on the student's emphasis in the program of graduate study. The applicant must furnish three letters of recommendation. Where possible, a personal interview is desirable.

Courses
120-131 Health Science I 3 s.h.
120-132 Health Science II 3 s.h.
123-131 Health Science I 3 s.h.
123-132 Health Science II 3 s.h.
123-133 Health Science III 3 s.h.
123-134 Health Science IV 3 s.h.
123-135 Health Science V 3 s.h.
123-136 Health Science VI 3 s.h.
123-137 Health Science VII 3 s.h.
123-138 Health Science VIII 3 s.h.
123-139 Health Science IX 3 s.h.
123-140 Health Science X 3 s.h.
123-141 Health Science XI 3 s.h.
123-142 Health Science XII 3 s.h.
123-143 Health Science XIII 3 s.h.
123-144 Health Science XIV 3 s.h.
123-145 Health Science XV 3 s.h.
123-146 Health Science XVI 3 s.h.
123-147 Health Science XVII 3 s.h.
123-148 Health Science XVIII 3 s.h.
123-149 Health Science XIX 3 s.h.
123-150 Health Science XX 3 s.h.
123-151 Health Science XXI 3 s.h.
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123-159 Health Science XXIX 3 s.h.
123-160 Health Science XXX 3 s.h.
123-161 Health Science XXXI 3 s.h.
123-162 Health Science XXXII 3 s.h.
123-163 Health Science XXXIII 3 s.h.
123-164 Health Science XXXIV 3 s.h.
123-165 Health Science XXXV 3 s.h.
123-166 Health Science XXXVI 3 s.h.
123-167 Health Science XXXVII 3 s.h.
123-168 Health Science XXXVIII 3 s.h.
123-169 Health Science XXXIX 3 s.h.
123-170 Health Science XL 3 s.h.
123-171 Health Science XLI 3 s.h.
123-172 Health Science XLI 3 s.h.
123-173 Health Science XLII 3 s.h.
123-174 Health Science XLIII 3 s.h.
123-175 Health Science XLIV 3 s.h.
123-176 Health Science XLV 3 s.h.
123-177 Health Science XLVI 3 s.h.
123-178 Health Science XLVII 3 s.h.
123-179 Health Science XLVIII 3 s.h.
123-180 Health Science XLIX 3 s.h.
123-181 Health Science L 3 s.h.
123-182 Health Science LI 3 s.h.
123-183 Health Science LII 3 s.h.
123-184 Health Science LIII 3 s.h.
123-185 Health Science LIV 3 s.h.
123-186 Health Science LV 3 s.h.
123-187 Health Science LX 3 s.h.
123-188 Health Science LXX 3 s.h.
123-189 Health Science LXXX 3 s.h.
123-190 Health Science C 3 s.h.
123-191 Health Science CC 3 s.h.
123-192 Health Science CCC 3 s.h.
123-193 Health Science CCCC 3 s.h.
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123-258 Health Science CCCC 3 s.h.
6.217 Experimental Animal Techniques 2 b. Designed to enable the individual to perform research
in experimental animals. The technique will be
conducted in the laboratory under the direction of
the instructor.

6.218 Animal Models of Human Disease 3 b. A study of the relationship between human and
canine disease models. The techniques will be
conducted in the laboratory under the direction of
the instructor.

6.219 Neurobiological Models of Human Disease 3 b. A study of the relationship between human and
rodent disease models. The techniques will be
conducted in the laboratory under the direction of
the instructor.

6.220 Neurochemical Models of Human Disease 3 b. A study of the relationship between human and
neurochemical disease models. The techniques will be
conducted in the laboratory under the direction of
the instructor.

6.221 Neuroimmunological Models of Human Disease 3 b. A study of the relationship between human and
neuroimmunological disease models. The techniques will be
conducted in the laboratory under the direction of
the instructor.

6.222 Neuroendocrine Models of Human Disease 3 b. A study of the relationship between human and
neuroendocrine disease models. The techniques will be
conducted in the laboratory under the direction of
the instructor.

6.223 Neurobehavioral Models of Human Disease 3 b. A study of the relationship between human and
neurobehavioral disease models. The techniques will be
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the instructor.

6.224 Neuroepigenetic Models of Human Disease 3 b. A study of the relationship between human and
neuroepigenetic disease models. The techniques will be
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the instructor.

6.225 Neurogenetic Models of Human Disease 3 b. A study of the relationship between human and
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the instructor.

6.226 Neuroepigenetic Models of Human Disease 3 b. A study of the relationship between human and
neuroepigenetic disease models. The techniques will be
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6.227 Neurobehavioral Models of Human Disease 3 b. A study of the relationship between human and
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6.228 Neuroendocrine Models of Human Disease 3 b. A study of the relationship between human and
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6.229 Neuroimmunological Models of Human Disease 3 b. A study of the relationship between human and
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6.230 Neurochemical Models of Human Disease 3 b. A study of the relationship between human and
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6.231 Neurobiological Models of Human Disease 3 b. A study of the relationship between human and
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6.232 Neuroepigenetic Models of Human Disease 3 b. A study of the relationship between human and
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6.233 Neurobehavioral Models of Human Disease 3 b. A study of the relationship between human and
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6.234 Neuroendocrine Models of Human Disease 3 b. A study of the relationship between human and
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6.235 Neuroimmunological Models of Human Disease 3 b. A study of the relationship between human and
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6.236 Neurochemical Models of Human Disease 3 b. A study of the relationship between human and
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6.237 Neurobiological Models of Human Disease 3 b. A study of the relationship between human and
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6.238 Neuroepigenetic Models of Human Disease 3 b. A study of the relationship between human and
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6.255 Neurobiological Models of Human Disease 3 b. A study of the relationship between human and
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6.260 Neurochemical Models of Human Disease 3 b. A study of the relationship between human and
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the instructor.

6.261 Neurobiological Models of Human Disease 3 b. A study of the relationship between human and
neurobiological disease models. The techniques will be
conducted in the laboratory under the direction of
the instructor.
Association. Training experiences are available at the University of Iowa Hospitals and at the Iowa City Veterans Administration Hospital. Additional experiences are available at affiliated institutions: Broadlawns Hospital in Des Moines, the Iowa Security Medical Facility at Oskaloosa, the Mid-Eastern Iowa Community Mental Health Center in Iowa City, and the Mental Health Institute at Independence, Iowa.

The Department offers an approved two-year residency in child psychiatry.

The Department staff is actively involved in genetic and family studies of psychiatric disorders, and includes a number of experts in the fields of genetic and biological psychiatry and neurochemistry.

A variety of opportunities is available for students and residents to participate in research. The basic science areas of neurochemistry, neuropsychology, and electronophotography offer additional opportunities to students and residents for special study and research. The clinical areas of psychology and child psychiatry and group psychotherapy also offer opportunities to a limited number of students for research and further study.

Courses
72:160 Psychiatry for Physician's Assistant Students
72:161 Psychiatry Elective for Physician's Assistant Students
72:288 Research in Psychiatry
72:289 Problems in Psychiatry

Courses open only to medical students
72:5 Clinical Psychiatry
72:30 Psychiatric梅apy at Hospital and Clinic
72:31 Geriatric Psychiarmy
72:35 Psychiatric Disorders of Children and Adolescents
72:36 Addict Psychiatry
72:37 Hospital Psychiatry, VA Hosptal, Iowa City

72:32 Child Psychiatry, Psychiatry Hospital, Children's Services
72:34 Adolescent Psychiatry at Child Psychiatry
72:37 Emergency Room Psychiatry, Psychiatric Hospital, Des Moines
72:38 Advanced Clinical Psychiatry: Treatment
72:39 Community Child and Adolescent Psychiatry
72:40 Psychopharmacology
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82:06 Radiation Research Laboratory

Undergraduate Programs
There are no complete programs, but two courses, 77:105 Introductory Radiation Biology and 77:106 Environmental and Reproductive Health, are open to students of liberal arts or professional colleges. They should be of interest to students who plan to enter one of the medical technology, environmental health or similar programs.

Graduate Programs
The M.S. degree in radiation biology emphasizes the technical aspects of radiation and serves as a minor field for students whose major interest is another, but related, field.

The Ph.D. program in radiation biology is open to graduate students with a background of study in physics, chemistry, mathematics, biology, health sciences, veterinary medicine or engineering. Ordinarily, the M.S. in the or a related field is required for admission to the Ph.D. program, but consideration will be given to other methods of qualifying.

Radiation Research Laboratory
Program co-directors: James W. Colestock, M.D., University of Iowa, Iowa City, and Gerald W. Colestock, M.D., University of Iowa, Iowa City. The program is interested in the development of new methods for the study of the physical, chemical and biological effects of radiation, and the application of radiobiological results to the study of radiobiological phenomena. The program stresses the importance of these areas to scientific research, clinical medicine and the general public.

Postdoctoral training is available by arrangement with the program chairman and individual faculty member.
student an awareness of the place of surgery among the physician's skills. These courses are available only to medical students and qualified students in associated health sciences.

The student in surgery develops awareness of surgical therapy in the treatment of disease. Emphasis is placed upon basic emergency techniques, traumatology, oncology, burns, gastrointestinal and biliary tract disease, endocrine disease; transplantation; plastic surgery and reconstruction; peripheral vascular surgery; thoracic and cardiovasculature surgery; and neurosurgery.

A majority of the courses involve patient-centered discussions and practical exercises interspersed with operating room experience. Lectures and conferences are regularly scheduled on specific topics. Special courses in selected topics of surgical research, independent study and clinical experiences are available to individual fourth-year students by special arrangement with the faculty.

The Faculty

Special faculty strengths are centered in the fields of pathophysiology and problems of severe burns, organ transplantation, the surgical control of morbid obesity, inflammatory bowel disease, the pathophysiology of biliary tract disease, pediatric surgery and plastic surgery. The thoracic, cardiovascular and neurosurgical surgeons have particular expertise in the clinical management of the spectrum of diseases in their specialties.

Facilities

The Department has adequate surgical patients for teaching. Special areas include the Burn Unit, the only one of its kind in the state, which provides adequate patient material for both clinical and basic science research. Laboratories provide equipment, space and technical expertise necessary to support teaching and a wide spectrum of clinical and scientific research. These laboratories include: Animal Operating; Tissue Culture; Gastroenterology; Microbiology; Peripheral Vascular; Transplantation; Organ Preservation; Cardiovascular; and Neurosurgery and Oncology.

Courses

75.1 Basic Emergency Skills 3 s.h. Senior- or junior-year course in emergency medical techniques: emphasis on shock, external and internal bleeding, and/or burns. 75.2 Clinical Research 3 s.h. Six-week course in surgical research: required of junior-level medical students. 75.101 Emergency Room for Physician's Assistant Students 2 s.h. 75.106 Surgery Unit for Physicists' Assistant 5 s.h. 75.107 Advanced Clinical Surgery 3 s.h. Students assume advanced responsibility for in-depth care of each ward in operating room and in surgical service. Pre-Requisites: 75.101 and consent of instructor. 75.211 Advanced Surgical Endoscopy 2 s.h. Advanced endoscopic surgery at outside teaching center. Pre-Requisites: 75.101 and consent of instructor. 75.212 Surgical Endoscopy 3 s.h. Advanced experience in diagnostic and operative management of tumors; student trained in several cholangiologic techniques including intraoperative percutaneous biopsy and stents in patients requiring endoscopic retrograde procedures. Pre-Requisites: 75.101 and consent of instructor. 75.217 Clinical Research 2 s.h. Advanced experience in clinical research on surgical problems in selected areas: inpatient and outpatient research. Pre-Requisites: 75.101 and consent of instructor. 75.231 Emergency Room for Residents 3 s.h. Participation in house officers and faculty in the various phases of acute medicine in the city. Pre-Requisites: 75.101 and consent of instructor. 75.232 Emergency Room on Campus 3 s.h. A participation in house officers and faculty in the various phases of acute medicine in the city. Pre-Requisites: 75.101 and consent of instructor. 75.251 Emergency Room for Physicians' Assistant Students 2 s.h. 75.252 Pediatric Surgery 3 s.h. A participation in house officers and faculty in the various phases of acute medicine in the city. Pre-Requisites: 75.101 and consent of instructor. 75.253 Plastic Surgery 3 s.h. A participation in house officers and faculty in the various phases of acute medicine in the city. Pre-Requisites: 75.101 and consent of instructor. 75.254 Urology 3 s.h. A participation in house officers and faculty in the various phases of acute medicine in the city. Pre-Requisites: 75.101 and consent of instructor. 75.260 Urology 3 s.h. A participation in house officers and faculty in the various phases of acute medicine in the city. Pre-Requisites: 75.101 and consent of instructor. 75.261 Urology 3 s.h. A participation in house officers and faculty in the various phases of acute medicine in the city. Pre-Requisites: 75.101 and consent of instructor. 75.262 Urology 3 s.h. A participation in house officers and faculty in the various phases of acute medicine in the city. Pre-Requisites: 75.101 and consent of instructor. 75.263 Urology 3 s.h. A participation in house officers and faculty in the various phases of acute medicine in the city. Pre-Requisites: 75.101 and consent of instructor. 75.264 Urology 3 s.h. A participation in house officers and faculty in the various phases of acute medicine in the city. Pre-Requisites: 75.101 and consent of instructor. 75.265 Urology 3 s.h. A participation in house officers and faculty in the various phases of acute medicine in the city. Pre-Requisites: 75.101 and consent of instructor. 75.266 Urology 3 s.h. A participation in house officers and faculty in the various phases of acute medicine in the city. Pre-Requisites: 75.101 and consent of instructor. 75.267 Urology 3 s.h. A participation in house officers and faculty in the various phases of acute medicine in the city. Pre-Requisites: 75.101 and consent of instructor. 75.268 Urology 3 s.h. A participation in house officers and faculty in the various phases of acute medicine in the city. Pre-Requisites: 75.101 and consent of instructor. 75.269 Urology 3 s.h. A participation in house officers and faculty in the various phases of acute medicine in the city. Pre-Requisites: 75.101 and consent of instructor. 75.270 Urology 3 s.h. A participation in house officers and faculty in the various phases of acute medicine in the city. Pre-Requisites: 75.101 and consent of instructor.
transplantation and to cancer, the \textbf{Department participates actively with the department of Microbiology.}

The Department participates very actively in introductory to MedSci, which involves the entire second year of second-year medicine. The Department offers courses designed to illustrate the diagnostic and treatment of diseases involving the peripheral nervous system in the male and the urinary tract in the female and child.

In the third and fourth years of the curriculum in medicine, the Department offers courses in diagnostic urology, radiologic urology, urologic oncology, and the entire field of urology. In the required third-year core course, the Department offers the basics of the material, and in the fourth year, it offers advanced elective courses of intensive study in these areas.

Continuing education is offered throughout the year for urologists and family practitioners.

These activities are conducted by a specialized staff whose members have intense interest in various areas, including pediatric urology, reproductive physiology, urologic oncology and prostatic diseases.

A special area, in which the Department has earned international recognition, has been created for the study of prostatic disease.

The urological laboratories are active and offer instruction in various areas of urology. Special courses in these areas are available on an optional basis.

\textbf{Courses}

79:04 Dialysis Lecture 2.5 hr. 

Required lecture-tutorial course of study on anatomy and physiology of the kidney and renal physiology preparatory for patient care under supervision of residents, including tile general introduction to the field of medicine, role of renal failure in various diseases, and care of patients with renal insufficiency and dialysis. Type of instruction: lecture-tutorial, individualized assignment of reading and discussion with student in small group; includes case studies of patients and problems in dialysis and renal disease. Schedule: every other week for the first 10 weeks of the course and every 2 weeks in the second 10 weeks of the course. Tuition: $250 per semester, three semesters per academic year.

79:15 Advanced Serology VI 4.5 hr.

Required seminars for students in the advanced course in urology, focusing on specific areas of investigation in urology, with emphasis on recent developments and current research in the field. Tuition: $300 per semester, three semesters per academic year.

79:16 Prostate Disease 4 hr.

Required course in prostate disease, covering the diagnosis, treatment, and management of diseases of the prostate gland. Tuition: $300 per semester, three semesters per academic year.

79:17 Urologic Oncology 4 hr.

Required course in urologic oncology, focusing on the diagnosis, treatment, and management of diseases of the genitourinary system. Tuition: $300 per semester, three semesters per academic year.

79:18 Medical Malpractice 4 hr.

Required course in medical malpractice, focusing on the legal aspects of medical practice and the prevention and management of malpractice suits. Tuition: $300 per semester, three semesters per academic year.

79:19 Ethics in Medicine 4 hr.

Required course in ethics in medicine, focusing on ethical issues in medical practice, including professionalism, patient autonomy, and the rights of patients. Tuition: $300 per semester, three semesters per academic year.

79:20 Medical Research Methods 4 hr.

Required course in medical research methods, focusing on the design, execution, and interpretation of medical research studies. Tuition: $300 per semester, three semesters per academic year.

79:21 Epidemiology 4 hr.

Required course in epidemiology, focusing on the principles and methods of the study of the distribution and determinants of health-related states in specified populations. Tuition: $300 per semester, three semesters per academic year.

79:22 Biostatistics 4 hr.

Required course in biostatistics, focusing on the application of statistical methods to the analysis of biomedical data. Tuition: $300 per semester, three semesters per academic year.

79:23 Immunology 4 hr.

Required course in immunology, focusing on the principles and methods of the study of the immune system and its role in health and disease. Tuition: $300 per semester, three semesters per academic year.

79:24 Molecular Genetics 4 hr.

Required course in molecular genetics, focusing on the principles and methods of the study of genetic information at the molecular level. Tuition: $300 per semester, three semesters per academic year.

79:25 Medical Genetics 4 hr.

Required course in medical genetics, focusing on the principles and methods of the study of genetic disorders and their management. Tuition: $300 per semester, three semesters per academic year.

79:26 Medical Genetics 4 hr.

Required course in medical genetics, focusing on the principles and methods of the study of genetic disorders and their management. Tuition: $300 per semester, three semesters per academic year.

79:27 Medical Genetics 4 hr.

Required course in medical genetics, focusing on the principles and methods of the study of genetic disorders and their management. Tuition: $300 per semester, three semesters per academic year.

79:28 Medical Genetics 4 hr.

Required course in medical genetics, focusing on the principles and methods of the study of genetic disorders and their management. Tuition: $300 per semester, three semesters per academic year.

79:29 Medical Genetics 4 hr.

Required course in medical genetics, focusing on the principles and methods of the study of genetic disorders and their management. Tuition: $300 per semester, three semesters per academic year.

79:30 Medical Genetics 4 hr.

Required course in medical genetics, focusing on the principles and methods of the study of genetic disorders and their management. Tuition: $300 per semester, three semesters per academic year.

79:31 Medical Genetics 4 hr.

Required course in medical genetics, focusing on the principles and methods of the study of genetic disorders and their management. Tuition: $300 per semester, three semesters per academic year.

79:32 Medical Genetics 4 hr.

Required course in medical genetics, focusing on the principles and methods of the study of genetic disorders and their management. Tuition: $300 per semester, three semesters per academic year.

79:33 Medical Genetics 4 hr.

Required course in medical genetics, focusing on the principles and methods of the study of genetic disorders and their management. Tuition: $300 per semester, three semesters per academic year.

79:34 Medical Genetics 4 hr.

Required course in medical genetics, focusing on the principles and methods of the study of genetic disorders and their management. Tuition: $300 per semester, three semesters per academic year.

79:35 Medical Genetics 4 hr.

Required course in medical genetics, focusing on the principles and methods of the study of genetic disorders and their management. Tuition: $300 per semester, three semesters per academic year.
College of Nursing

The College of Nursing is an integral part of the University Health Center, sharing in and contributing to teaching, research and patient-care resources which have earned international recognition. This provides an unusually fine setting for college preparation for nursing, because the educational and clinical resources which are needed to educate nurses are available on or near the campus. This also makes it possible for the faculty and students to participate fully in University life 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 are accredited by the Department of Baccalaureate and Higher Degree Programs of the National League of Nursing, the professional accrediting agency for college and university programs of nursing education.

The University of Iowa baccalaureate program is approved by the Iowa Board of Nursing and its graduates qualify to take the licensure examination required for practice as registered nurses.

Undergraduate Program

Man 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, armed forces, the Peace Corps, the World Health Organization, the Red Cross, home and foreign mission, youth camps and professional organizations. A professional nurse may be engaged in clinical nursing, teaching, research or private practice.

A bachelor’s degree program, such as that offered by The University of Iowa, provides college-level preparation for careers in the hospital care of patients and in such community agencies 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 is probably the most important—full participation in the social, cultural and recreational activities of a highly diversified 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 potentials, 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 103-hour-seminar hour program consists of 38 semester hours of general education courses, 40 semester hours of supportive prenursing courses and 50 semester hours of coursework in nursing. Enrolment in nursing courses during one summer session is required. A second summer session in a nursing core course is not guaranteed. Therefore, most students complete the program in four academic years and one summer session.

Course offerings are based on the concepts of health, deviations from health and nursing intervention, and are presented in progressively more complex 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 in the home rather than the actions of the recipient. The curriculum builds on the experience and values of the student and emphasizes the importance of the student's role in the health care delivery system. It is designed to provide a broad base for the student to achieve a sense of personal identity and competence in nursing.

Approaches to the College of Nursing

The student may complete the entire program at Iowa, enrolling the first year in the University College of Liberal Arts, or transfer from an institution offering a two-year sequence of specific courses approved by the College of Nursing.
Financial Aid
In addition to the assistance available to University students generally, there are existence programs specifically for nursing students. For further information about financial assistance, write to the University Office of Student Financial Aid.

Admission
High School Background
There are no specific high school course requirements for admission to the College of Nursing. The College recognizes four years of English, two years of history, one year of mathematics and one year each of biology, chemistry, and physics. In addition, the student must complete a high school course in driver's education.

College Background
Applicants for admission to the undergraduate program in nursing must present a minimum of 30 semester hours completed in an accredited college, including three of the five required science courses and satisfaction of the following general education requirements:

- Rhetoric—Eighteen semester hours (may be satisfied by testing for advanced standing; a student who has earned credit in English composition may complete the speech component after admission; non-University of Iowa students transferring 40 or more semester hours of credit are exempt from the rhetoric requirement);
- Mathematics—Two and one-half years of high school mathematics, or a satisfactory score on the mathematics battery of the American College Tests, or completion of a course in mathematics comparable to or higher than Intermediate Algebra (M14.1);
- Chemistry—High school chemistry or its equivalent (if taken at the college level it may be included in the 30 semester hours required for admission); and
- Physics—High school physics or its equivalent (if taken at the college level, it may be included in the 30 semester hours required for admission).

Preclinical Background
Including the biological science courses required for admission to the College, the student must satisfy the following requirements before beginning clinical nursing coursework:

- Animal Biology 5 s.h.
- Chemistry (Organic and Biochemistry) 5 s.h.
- Human Anatomy 4 s.h.
- Human Physiology 4 s.h.
- Microbiology 4 s.h.
- Nutrition 3 s.h.
- Psychology 4 s.h.
- Sociology 4 s.h.
- Anthropology 4 s.h.
- Human Development and Behavior 3 s.h.

Standards
To be considered for admission to the College of Nursing, the applicant should have satisfactorily completed college coursework taken.

The American College Tests
All applicants for admission to The University of Iowa must complete the American College Tests. For information on the tests, write to the American College Testing Service, Box 451, Iowa City, Iowa 52240.

Selection Factors
Fulfillment of minimum admission requirements does not guarantee admission to the College of Nursing. From applicants who meet minimum requirements, the College's admission committee selects those who appear to be best qualified. The committee may require personal interviews. A physical examination is required prior to final admission.
Application Deadlines

Applications must be received by March 15 for the fall semester, June 15 for the spring semester and January 15 for the summer session.

Master of Arts

The University of Iowa Master of Arts program in nursing is accredited by the National League for Nursing. To receive the degree, nursing students must complete the requirements of the curriculum described below. The curriculum was in the process of revision when this Catalog edition closed; to that reason, requirements are not described down to the level of specific courses. More detailed information may be requested from the Graduate Program Office in the College of Nursing.

Degree Requirements

This 45-semester-hour curriculum will ordinarily require four semesters of full-time study for completion. Students must maintain a 2.5 minimum grade-point average, and must successfully complete a written, comprehensive examination.

The master’s degree curriculum is structured into five components:

Advanced Nursing Core (15 s.h.): Coursework in the areas of conceptual/theoretical foundations of nursing (9 s.h.), leadership in nursing practice (5 s.h.), methods of nursing research (3 s.h.), and a professional seminar (3 s.h.).

Nursing Specialization (6 s.h.): Allows students to build a special area of knowledge and practice which extends beyond the advanced nursing core. Specialization may concentrate on the nursing of individuals—Child Health Nursing or Adult Health Nursing—or on the nursing of groups—Community/Family Health Nursing.

Students may focus their area of specialization through their choice of coursework and fieldwork 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 a cardiac care unit. Students with unique career goals may have the option of further modifying their plan of study under the direction of their academic advisor and with the approval of the graduate faculty.

Functional Skills (9 s.h.): Students may select among administration, clinical practice, consultation, education, or research opportunities for additional study. Students seeking to develop skills for a career in clinical practice will enroll for six hours of advanced clinical practice, which is in addition to courses required for their nursing specialization.

Supporting Courses (6 s.h.): Students may choose to do their supporting coursework in an area related to their clinical specialization or career role interest. Relevance of these courses to their plan of study will be approved by the academic advisor.

Thesis (6 s.h.): All students are expected to write and successfully defend a thesis. This involves a systematic inquiry into a nursing problem to include such methodologies as historical research, case studies, analytical literature review, surveys, or experimental studies which meet the requirements of the Graduate College.

Admission as a Master’s Candidate

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: (1) completed application, (2) official transcripts from other institutions attended, (3) scores from the Graduate Record Examination, (4) scores from the Test of English as a Foreign Language when appropriate, and (5) a minimum grade-point average of 2.5 for regular admission, 2.3 for conditional admission.

The College of Nursing additionally requires that the applicant:

Possess a baccalaureate degree with a major in nursing from a program accredited by the National League for Nursing;

Meet the legal requirements for the practice of nursing in at least one state in the United States;

Have an undergraduate grade-point average of 2.7 or a demonstrated ability to do graduate work for regular admission, a 2.5 for conditional admission;

Have recommendations from three persons familiar with either competency in the practice of nursing and potential for leadership and scholarship;

Submit the score from the Miller Analogies Test;

Submit a 600-word essay detailing career goals and personal and professional improvement goals;

Have successfully completed a basic statistics course.

Applications for master’s degree candidacy are reviewed once a year for fall semester admission. The application deadline is March 15. By that time the admission committee will need all relevant admission materials, as listed above, in order to make a decision. Registration for coursework is possible in any term. However, initial enrollment in nursing courses which are offered sequentially takes place in the fall semester. All regulations of the Graduate College pertaining to academic standing, probation and dismissal are applicable to graduate students in nursing. Transfer credits applicable to the master’s degree program are limited, and must be approved by the dean for the graduate program in nursing and by the student’s advisor.

Admission as a Professional Improvement Student

Some nurses may wish to take coursework at the University to fulfill the objective of professional or personal improvement only. Such individuals may request admission in the Professional Improvement category. This admission status will allow the student to take some graduate courses in the University without commitment to a degree objective.

Admission as a Professional Improvement student is required to follow the application procedure described in the preceding section if they wish to seek admission as a master’s degree candidate.
Continuing Education
The College offers nonacademic, short-term programs and special projects for registered nurses. They are scheduled both on and off campus. Continuing education units (CEUs) are awarded for on-campus offering in blocks of one unit per ten hours of instruction.

Pediatric Nurse Practitioner Training Program
This four-month certificate program, offered jointly by the Department of Pediatrics of the College of Medicine and the College of Nursing, prepares registered nurses to function as pediatric nurse practitioners in an expanded role on child health care teams. In clinics and in private pediatrician offices. Program requirements: 96:413 Seminar for Pediatric Nurse Practitioners 6 s.h.
70:100 Practicum for Pediatric Nurse Practitioners 3 s.h.
Clinical experience in the care of children is provided in the University of Iowa Hospitals and Clinics and under practitioners in the local setting. The program can be completed in one semester.

Admission
Applicants must be registered to practice professional nursing in Iowa (or be eligible for licensure by endorsement) and have one year of experience in a hospital children’s ward. The general requirements for admission to the College of Nursing apply. Graduate students may enroll in the program as described either prior to or following the required courses in advanced nursing for children.

Facilities
The Nursing Building is centrally located on the University’s main campus in close proximity to the colleges of Medicine, Pharmacy and Dentistry, University Hospitals, the Basic Science Building and the Health Sciences Library. Completed in 1971, the Nursing Building consists of five floors with varied and specialized facilities. Administrative offices are located on the first floor. Faculty offices are located on every floor except the second, which is utilized entirely for classrooms.

labsoratories and the Learning Resource Center. Additional classrooms and laboratories are located throughout the building. Conference rooms, student lounges and meeting rooms are conveniently located. Research facilities in the building provide quick access to computerized calculating equipment and programable micromini-computers.

Courses
Undergraduate
96:110 Introduction to Health and Health Care Services 3 s.h.
Overview of health and health care services, with emphasis on concept and philosophy of health, various selected factors affecting health, current health care system and trends in health delivery services.
96:235 Human Development and Behavior 3 s.h.
Developmental stages of human organism from conception through senescence; physiological, intellectual, emotional, and social factors. Psychological 311 or 315.
96:51 Nursing I 3 s.h.
Centers on the nursing process with primary emphasis on assessment, utilizing skills with measurement tools, observation and communication skills, manifestations of disease processes, relatedness, role awareness, teaching, student-to-student interaction, role awareness. Students expected to make inroads concerning individual or family’s state of health. Based on role collected, learning experiences occur in a variety of settings with families and individuals, of varying ages and at differing stages of development and health. Prerequisites: admission to the College of Nursing.
96:203 Psychology 3 s.h.
Introduction to principles of psychology and physiological mechanisms of behavior, emphasis on changes that occur in human development and processes and methods of correcting these changes.
96:240 Management Concepts Applied to Nursing Practice 3 s.h.
Small group and historical learning experiences designed to facilitate application of management and supervisory concepts to individual areas of practice. Growth in leadership, team nursing, supervision, professional involvement, teamwork. Not designed to meet major requirements in the nursing major.
96:103 Primary Care Seminar 2 s.h.
96:102 Nursing II 3 s.h.
Pathophysiologic and disease processes in individuals, families, and groups. Initiation and maintenance of health throughout all life cycles involved in self-care of human needs; emphasis on beginning interventions and evaluation of nursing outcomes. Stresses development of critical thinking and problem solving. Prerequisite: Nursing I.
96:101 Nursing III 3 s.h.
Nursing intervention in crisis situations of society. Areas of crisis situations: understanding of basic coping, risk, non-accidental injuries and other significant factors upon individuals whose psychosocial environment precipitates crisis situation. Off campus and spring only. Prerequisite: Nursing II.
96:104 Nursing IV 3 s.h.
Assisting in surgery and in caring for patients in teaching unit and ambulatory services. Initiative in planning, executing, and evaluating, with particular attention to group dynamics, problems related to primary care and community health problems. Prerequisite: Nursing III.
96:106 Nursing V 3 s.h.
Leadership in selected independent nursing practice. Evaluation of selected nursing projects, decision making, leadership, delegation, professional growth, relationship of theory and practice to professional growth. Prerequisite: Nursing IV.
96:107 Professional and Medical Aspects of Nursing 3 s.h.
Relationship of professional values and ethics, historical and legal factors to current nursing and health care issues and trends. Prerequisites: Nursing IV or permission of instructor.
96:108 Individual Study 1-3 s.h.
Supervised study under direct practice assigned to meet needs of student.
96:109 Human Sexuality 3 s.h.
Physiological and psychological aspects of human sexuality, interpretation as defined by needs of the group.
Selection of texts by L. A. Johnson, G. T. H. T. C. A. 96:110 Family Dynamics 3 s.h.
Family planning and contraception with emphasis on cultural and socio-economic influences, perinatal and perinatal care, aspects, communication skills, and supportive counseling skills.
96:111 Loss and Death in Clinical Nursing Practice 3 s.h.
Evolution of thought and feeling in dealing with loss and death in the clinical nursing practice. Prerequisite: 96:107.
96:113 Family Life: Successful Interactions 3 s.h.
Families continue to be the primary objective of CPR efforts in another audience. Refers to various aspects of family role and function in the family. This includes achievement of CPR skills, etc. In this course, participants will develop skills that will enable them to fulfill their role in the family. Prerequisite: 96:110 or permission of instructor.
96:116 Leadership in Groups 3 s.h.
Identification of various types and levels of group, exploration of interpersonal and group skills that are effective for group interaction, understanding of group process, development of skills that are effective for development of group leader, group dynamics, and assessment of one’s role in participating within a group. Prerequisite: 96:106.
96:119 Introduction to Gerontology 3 s.h.
Interdisciplinary course focusing on an overview of the process of aging with emphasis on the issues, resources and problems of aging in society, society, and its relationship with the medical care system. Prerequisites: senior standing by senior or consent of instructor.
NURSING

00:131 Isolation/Infection
2-3 a.m.
Analysis of risk and benefits of hospitalization and disease prevention for patients with hospital-acquired infection. New programs. 00:125.

00:132 Nursing Care of the Hospitalized Orthopedic Patient
3-4 b.m.
1. Psychosocial adjustment and interaction with other patients hospitalized for orthopedic, surgical, and trauma. 00:125.

00:133 Nursing Care of the Adult Experiencing Surgery
5-6 a.m.
1. In-depth study of knowledge and skills needed for preoperative and postoperative care of patients undergoing major surgery. 00:125.

00:134 Severe Depressive Illness
1-2 p.m.
1. Formulation of the concept and approach to depressive illness and its relationship to the patient's health. 00:125.

00:135 Nursing Care of the Adult Experiencing Surgery
4-5 p.m.
1. In-depth study of knowledge and skills needed in preoperative and postoperative care of patients undergoing major surgery. 00:125.

00:136 Anxiety Disorders
5-6 p.m.
1. In-depth study of anxiety disorders and their relationship to the patient's health. 00:125.

00:137 Generalized Anxiety Disorder
6-7 p.m.
1. Introduction to the knowledge and skills necessary for the care of patients with anxiety disorders. 00:125.

00:138 Adverse Drug Reactions
7-8 p.m.
1. Development of knowledge and skills in caring for patients with adverse drug reactions. 00:125.

00:139 rugs
8-9 p.m.
1. In-depth study of knowledge and skills needed for the care of patients with adverse drug reactions. 00:125.

00:140 Gastrointestinal Disorders
9-10 p.m.
1. In-depth study of knowledge and skills needed in the care of patients with gastrointestinal disorders. 00:125.

00:141 Common Gastrointestinal Disorders
10-11 p.m.
1. In-depth study of knowledge and skills needed in the care of patients with common gastrointestinal disorders. 00:125.

00:142 Sexuality: Pediatric Male Practitioners
11-12 a.m.
1. Development of knowledge and skills in caring for patients with genital disorders. 00:125.

00:143 Obstetric Nursing
12-1 p.m.
1. Development of knowledge and skills in caring for patients with obstetric complications. 00:125.

00:144 Management of Hemorrhage
1-2 p.m.
1. Management of hemorrhage in patients with hemorrhagic disorders. 00:125.

00:145 Urinary Incontinence
2-3 p.m.
1. In-depth study of the diagnosis and management of urinary incontinence. 00:125.

00:146 Psychosocial Nursing
3-4 p.m.
1. In-depth study of the diagnosis and management of psychosocial disorders. 00:125.

00:147 Cooperative and Theoretical Foundations for Nursing
4-5 p.m.
1. Analysis of the theoretical and cooperative foundations for nursing. 00:125.

00:148 Leadership in Nursing Practice
5-6 p.m.
1. Analysis of the theoretical and cooperative foundations for nursing. 00:125.

00:149 Research in Nursing Science
6-7 p.m.
1. Analysis of the theoretical and cooperative foundations for nursing. 00:125.

00:150 Systems Theories in Nursing
7-8 p.m.
1. Analysis of the theoretical and cooperative foundations for nursing. 00:125.

00:151 Use of Literature in Psychiatric Nursing
8-9 p.m.
1. Analysis of the theoretical and cooperative foundations for nursing. 00:125.

00:152 Use of Literature in Psychiatric Nursing
9-10 p.m.
1. Analysis of the theoretical and cooperative foundations for nursing. 00:125.

00:153 Use of Literature in Psychiatric Nursing
10-11 p.m.
1. Analysis of the theoretical and cooperative foundations for nursing. 00:125.

00:154 Use of Literature in Psychiatric Nursing
11-12 a.m.
1. Analysis of the theoretical and cooperative foundations for nursing. 00:125.
NURSING

including maternal (psychosocial/health) health. Offered each term. Essential to academic and clinical success.

90.334 Nursing Intervention for Families 3 a.h.
Assessment and family dynamics, nursing intervention and ambulatory clinic families, family processes, family history, family dynamics. Prerequisite: Fall, spring, summer. Prerequisite: 90.333.

90.335 Nursing Interventions in Groups 3 a.h.
Group dynamic, group process and psychosocial change in nursing. Intervention with groups of people. Fall, spring, summer. Prerequisite: 90.333.

90.354 Research: Issues in Mental Health Nursing 1 a.h.
Experiences of nurses and issues related to nursing practice. Offered each fall and occasional summers. Prerequisite: 6 a.h. of mental health nursing.

90.355 Mental Health Nursing: Psychiatric—Selected Populations 3 a.h.
Study and selected psychiatric experiences among inpatient and outpatient psychiatric patient populations, e.g., geriatric, institutionalized patients, or communities. Fall, spring, summer. Prerequisite: 9 a.h. of advanced nursing and consent of instructor.

90.356 Consultation in Mental Health Nursing 3 a.h.
Study of consultation process and process. Emphasis on methods related to consultation. Consent of instructor.

90.357 Mental Health Nursing: Psychiatric—Advanced Models 3 a.h.
Survey of advanced models of psychiatric nursing. Consent of instructor.

90.364 Practicum in Teaching Mental Health Nursing 3 a.h.
Study and application of learning theory. Nursing theory and philosophy teaching strategies as applied to mental health. Offered each fall, spring, summer. Prerequisite: 4-6 a.h. of psychiatric mental health nursing and consent of instructor.

90.359 Nursing Interventions: Capabilities 3 a.h.
Survey of community development and systems, selected problems and nursing strategies used to solve selected problems. Offered each fall, spring, summer. Prerequisite: 9 a.h. of psychiatric mental health nursing and consent of instructor.

90.360 Nursing Service Administration I 3 a.h.
Advisory services, committee and organizational theory for understanding administration in a complex modern community hospital. Small group discussion using case method of studying nursing administration.

90.361 Nursing Service Administration II 3 a.h.
Functions of nursing administration and nursing director in complex health care setting. Discussion of major issues in nursing administration: power and authority, role development, leadership, the relation of the hospital as an institution, and the relation of the hospital as an institution.

90.362 Nursing Service Administration III 3 a.h.
Continuation of 90.361.

90.368 Clinical Nursing I 3 a.h.

90.369 Clinical Nursing II 3 a.h.
Continuation of 90.368, which is prerequisite.

90.370 Topics 3 a.h.
The pharmaceutical sciences are concerned with the preparation and dispensing of medicinal products and monitoring their activity. The pharmacist is also trained to identify, analyze, select, combine and standardize these medicines, and serves either the community as a prime source of information on health topics.

Although he or she performs a variety of tasks in and out of the community pharmacy, the pharmacist is basically a specialist in the science of drugs. He or she must understand their 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 facts for the strength, purity and efficacy of drug products. The pharmacist is prepared to compound and dispense prescriptions written by health practitioners, who rely on the pharmacist for information about various drugs, their availability, activity, toxicity, contraindications, etc.

Nearly everyone is familiar with the community pharmacist and the pharmacy in which he or she practices. The size and type of practice may vary—community pharmacies may be large or small, operated by individuals or by corporations. The pharmacists who staff these pharmacies make up the majority of practitioners. Over 100,000 men and women practice in community pharmacies.

Another smaller group of pharmacists is employed in hospitals and other health facilities. The government also employs pharmacists in the Public Health Service, Veterans Administration, Food and Drug Administration, and armed forces.

Pharmaceutical industry is also an area where numerous pharmacists are employed. This includes pharmaceutical manufacturing, where pharmacists are found in various areas of research, development, manufacturing, control, marketing and advertising. In addition to these pharmacists, numerous others are employed in pharmaceutical sales. Pharmacy training is especially valuable to these men and women who are responsible for acquainting physicians, dentists, veterinarians and other pharmacists with drug products.

In the United States more people are receiving total health care than ever before. This expansion of health care will continue. Young men and women in pharmacy 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, and they receive professional training and education in a number of areas. These include pharmacy technology, biopharmaceutics, medicinal chemistry and natural products, pharmaceutical economics and hospital pharmacy.

The colleges of Liberal Arts, Business Administration, Law and Medicine contribute to the education of pharmacy students by providing instruction in the physical sciences, basic medical sciences, business, law, and humanities.

Basically, the Bachelor of Science program in pharmacy consists of one year of pre-pharmacy study, taken in the College of Liberal Arts at Iowa or in any accredited community or liberal arts college, and four years of pharmacy studies.

It is possible to transfer into the College of Pharmacy after two years of college-level work as an approved institution. A student entering the College after two years of preprofessional study can complete the professional program in three years if the preprofessional study includes, in addition to the basic preprofessional requirements, at least eight semester hours of organic chemistry, from five to eight semester hours of biology or zoology, three or four semester hours of economics and three to four semester hours in quantitative analysis.

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.
The Professional Curriculum includes a minimum of 18 semester hours of electives; eight of these must be taken in the fourth
professional year. By choosing appropriate electives, the student may focus on such special areas as clinical or hospital
pharmacy or pregraduate study.

| First Year | First Semester | 46:13 Pharmacy Math | 3 s.h. | 37:3 Principles of Animal Biology | 5 s.h. | 4:121 Organic Chemistry I | 3 s.h. | 4:101 Remediantary Quantitative Analysis | 4 s.h. |
|           |               | Total | 15 s.h. |
|           | Second Semester | 46:14 Pharmacy: Orientation | 2 s.h. | 66:1 Principles of Economics | 4 s.h. | 4:122 Organic Chemistry II | 3 s.h. | 4:141 Intermediate Chemistry Laboratory I | 2 s.h. |
|           |               | * 60:102 Principles of Human Anatomy | 3 s.h. | ** Elective | 3 s.h. | Total | 17 s.h. |

* Also offered first semester for students on a 2-3 program only.
** 18 semester hours of electives are required, of which at least eight must be taken in the P-4 year.

| Second Year | First Semester | 46:22 Pharmacology I | 4 s.h. | 96:105 Biochemistry for Pharmacy Students | 4 s.h. | 61:157 General Microbiology | 4 s.h. | *60:102 Principles of Human Anatomy | 3 s.h. |
|            |               | Total | 15 s.h. |
|            | Second Semester | 46:24 Pharmacology II | 4 s.h. | 46:22 Pharmacological Socioeconomics | 4 s.h. | 46:128 Medicinal Chemistry: Natural Products | 4 s.h. | 73:120 Intermediate Physiology | 4 s.h. |
|            |               | Total | 16 s.h. |

| Third Year | First Semester | 46:121 Medicinal Chemistry: Natural Products I | 4 s.h. | 65:503 Principles of Human Pathology | 4 s.h. | 71:101 Pharmacology for Health Sciences: Pharmacy Practice | 5 s.h. |
|            |               | 48:50 Pharmacology and Toxicology | 3 s.h. | 46:38 Pharmacology II | 3 s.h. | 46:110 Clinical Pharmacy: Case Study | 3 s.h. | 46:115 Clinical Pharmacy: Elective | 3 s.h. |
|            |               | Total | 16 s.h. |

| Second Semester | 46:132 Medicinal Chemistry: Natural Products II | 4 s.h. | 71:103 Pharmacology and Toxicology | 3 s.h. | 46:38 Pharmacology III | 3 s.h. | 46:111 Clinical Pharmacy: Therapeutics I | 2 s.h. |
|                | 46:142 Pharmacology IV | 4 s.h. | *46:60 Clinical Pharmacy: Community Pharmacy | 2 s.h. | 46:61 Clinical Pharmacy: Drug Information | 2 s.h. | ** Electives | 4-6 s.h. |
|                | Total | 16-18 s.h. |

| Fourth Year | First Semester | 46:21 Jurisprudence | 2 s.h. | 46:43 Pharmacology IV | 4 s.h. | 46:60 Clinical Pharmacy: Community Pharmacy | 2 s.h. | 46:61 Clinical Pharmacy: Drug Information | 2 s.h. |
|             |                | 46:111 Clinical Pharmacy: Therapeutics I | 2 s.h. | ** Electives | 6-8 s.h. | Total | 12-14 s.h. |

* May be taken in either semester.
** A minimum of 8 s.h. of electives must be taken in the P-4 year.

| Professional Electives | 46:47 Introduction to Research Methods | 3 s.h. |
|                        | 46:48 Community Pharmacy Operations | 2 s.h. |
|                        | 46:50 Pharmaceutical Chemistry: Drug Analysis | 3 s.h. |

| 46:52 Senior Seminar | 1 s.h. | 46:56 Non-Prescription Drugs | 2 s.h. | 46:62 Clinical Pharmacy: Family Practice Therapeutics | 2 s.h. |
| 46:63 Clinical Pharmacy: Pediatric Therapeutics | 3 s.h. | 46:64 Hospital Pharmacy: Radiopharmacy | 2 s.h. | 46:65 Clinical Pharmacy: Surgical Therapeutics | 3 s.h. |
| 46:89 Clinical Pharmacy: Elective Clerkship | 1-2 s.h. | 46:101 Pharmacy: Projects | 1-3 s.h. | 46:103 Physical Pharmacy | 3 s.h. |
| 46:104 Biopharmaceutics | 3 s.h. | 46:105 Industrial Pharmacy Survey | 2-3 s.h. | 46:107 Hospital Pharmacy: Survey | 3 s.h. |
| 46:108 Hospital Pharmacy: Survey | 3 s.h. | 46:114 Accredited Clinical Pharmacy | 4 s.h. | 46:120 Clinical Pharmacy: Psychopharmacology | 4 s.h. |
| 46:136 Introduction to Natural Product Research | 1-2 s.h. | 46:104 Communications Skills for Pharmacists | 3 s.h. |

Graduation from the baccalaureate program in pharmacy requires the student to complete satisfactorily the required courses in addition to 18 semester hours of electives and to achieve a minimum grade point average of 2.0 for all work undertaken.

For rules and regulations concerning academic probation, pass-fail credit by examination, maximum schedule, second-grade-only option, waiver or substitution of coursework, cancellation of registration, drop date and correspondence study, see the "College of Pharmacy" section in the current Schedule of Courses.

**Admission**

The college-level work outlined below is the minimum academic requirement for admission to the College of Pharmacy.

Rhetoric: eight semester hours, or six hours of transfer credit in English composition and rhetoric, and two hours in speech.

General chemistry: eight semester hours.

Mathematics: three semester hours equivalent to analytic geometry or a higher mathematics course.

Physics: a one- or two-semester course in basic physics (at least, 29.8 Basic Physics). A one-year animal biology or zoology course may be taken instead; physics will then be taken in the first professional year.
Students who have minor deficiencies in meeting the above requirements may be admitted to the College upon recommendation of the Dean, the Admissions Committee and the approval of the Dean. The applicant must have earned a 2.0 (A=4) cumulative grade-point average on all college work attempted.

Fulfillment of the specific requirements for admission listed above does not ensure admission to the College of Pharmacy. From applicants meeting the requirements, the admissions committee of the College selects the best qualified applicants.

Transfer Students

Students who transfer into the College after two years in a community or liberal arts college can complete the pharmacy program in three years if they have satisfactorily completed courses in organic chemistry, biology or zoology, economics and quantitative analysis. Students who plan to remain in a community college for two years before transferring to the College should consult the Dean of the College concerning course requirements.

Transfer with Advanced Standing

Students transferring from other colleges of pharmacy accredited by the American Council on Pharmaceutical Education receive credit toward the baccalaureate degree in pharmacy for the academic and competence completed coursework required in this curriculum. However, at least one academic year (30 semester hours) of residence in the University of Iowa College of Pharmacy is required for the degree.

Students transferring from non-pharmacy colleges may receive credit for work required in the Bachelor of Science curriculum in pharmacy, but must expect to be enrolled for at least three years in the College of Pharmacy.

A minimum grade of C is required for work applied by transfer toward the pharmacy degree.

Graduate Programs

The College has active graduate programs in several areas. Master of Science and Doctor of Philosophy programs are available in pharmacology, medicinal chemistry, natural products, and pharmaceutical science. A Master of Science degree is available in clinical hospital pharmacy.

Advanced study in the pharmaceutical sciences prepares the student for opportunities in 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 and the requirements for graduate study, grade-point average, GRE score and necessary letters of recommendation are the same as those established by the Graduate College.

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, University Hospitals, the Basic Sciences Building and the Health Sciences Library. The Pharmacy Building is a five-story structure especially designed to provide modern facilities for a comprehensive program of pharmacy education. In addition to classrooms, an auditorium and learning resources center, the building houses well-equipped separate laboratories and a greenhouse for instruction at the undergraduate and graduate levels.

The College's extensive industrial pharmacy laboratory serves as a teaching lab as well as a service division of the College. Here undergraduate and graduate students have the opportunity to learn methods of large-scale pharmaceutical production development.

In the Clinical Pharmacy program, students work with other health professionals and have the opportunity to monitor drug therapy in hospitals and non-hospitalized patients, under the supervision of clinical instructors in pharmacy and medicine. Among the various clerkships in which the students are involved are many areas of the University and Veterans Administration hospitals; the family practice clinics at Oakdale, Mechanicville, and Williamstown; the Iowa Medical Secondary Care; Iowa City Mercy Hospital; Cedar Rapids Mercy Hospital; selected community pharmacies and nursing homes; the Iowa Drug Information Service; and the College of Pharmacy's Department of Pharmaceutical Services.

Courses

Undergraduate Pharmaceutics

4813 Pharmacy: Microbiology: 3 cr.

Application of systems of weights and measures and principles of biochemistry involved in pharmaceutical technology and pharmacotherapy includes introduction lecture in calculus and application to pharmaceutical problems.

4814 Pharmacy: Statistics: 1 cr.

Statistical analysis and development of the assessment and protection of pharmacy.

4823 Pharmacology I: 4 cr.

Lecture and laboratory - application of statistical techniques to measurement, characteristics of small particles, properties of solid dosage forms, formulation, preparation and evaluation of solid dosage forms. Prerequisites: 4813, 4814, 4824.

4824 Pharmacology II: 4 cr.

Lecture and laboratory - application of physical and chemical laws to the formulation and preparation of liquid dosage forms, including solutions, colloid and emulsions. Prerequisites: 4823.

4826 Pharmacology III: 3 cr.


4843 Pharmacology IV: 4 cr.

Lecture and laboratory - availability of drugs; various dosage forms such as solids, solutions and suspensions with emphasis on mouthwash, nasal and ophthalmic solutions and on the administration of drugs on the large laboratory emphasis patient record systems, techniques of compounding and preparation and recognition of drug reactions. Prerequisites: 4824.

Graduate Pharmaceutics

48111 Pharmacy: Projects: 1-3 cr.

Basic and applied research projects of pharmaceutical significance. Prerequisites: 4813 or above, open to graduate students.

48122 Physical Pharmacy: 3 cr.

Basic principles of prescriptive, education and socialization in pharmaceutical systems. Prerequisites: 48111.

48123 Pharmacokinetics: 3 cr.

Mathematical drug absorption and interdeard receptor among different pharmaceuticals and dosage forms and pharmacodynamic effects. Prerequisites: graduate standing, 48122.

48123 Industrial Pharmacy Survey: 2-3 cr.

Organization, planning and unit operations in production of pharmaceuticals. Prerequisites: 48124.

48222 Pharmacology: Selected Topics: 1-3 cr.

Recent advances in the field of pharmacology or related fields. Prerequisites: 48124.

48226 Stability of Pharmaceuticals: 2 cr.

Mechanisms of degradation in pharmaceuticals, prediction of shelf-life of pharmaceuticals, stabilization of new chemical entities. Prerequisites: 4813, 4824.

48228 Analytical Chemistry: 1 cr.

Lecture and laboratory. collection and interpretation of analytical data, instrumental analysis as applied to pharmaceutical quality control, separation techniques.
48.116 Clinical Pharmacy: Ambulatory
In-depth discussion of selected topics dealing with clinical use of pharmaceutical agents. Offered Spring semester. Prerequisites: 48.103, 48.105.

48.118 Clinical Pharmacy: Mycology
Lecture and laboratory course concerned with rational use of antifungal drugs in treatment of parasitic diseases. Prerequisite: 48.104 or graduate standing.

Graduate Clinical-Hospital Pharmacy

48.117 Hospital Pharmacy: Survey
Hospital as set for delivery of health care system: financing, planning, organization, and management. Prerequisite: 48.104. 3 h.

48.118 Hospital Pharmacy: Pharmacy
Survey
Continuation of 48.117: medical staff-pharmacy relation, pharmacy committee, formation and execution of defined hospital drug procurement policies; practice of inpatient control drug dispensation and pharmacy service, and hospital service systems. Prerequisites: 48.117, 48.119.

48.119 Hospital Pharmacy: Clinical
Applications of principles of pharmacology and pharmaceutics to the treatment of hospitalized patients. Prerequisites: 48.118, 48.119.

48.120 Hospital Pharmacy: Antimicrobial
Agents
In-depth discussion of selected topics dealing with clinical use of antimicrobial agents. Offered Spring semester. Prerequisites: 48.103, 48.105.

48.122 Clinical Pharmacy: Dermatology

48.124 Clinical Pharmacy: Endocrinology
Scientific approach to the solution of problems in pharmaceutical administration, emphasis on research problems, design and their relationship. Prerequisite: 48.104 or equivalent. Corequisite: 48.242 or EC.102.
Continuing Education

The Division of Continuing Education was established by special appropriation 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 the several departments and colleges of the University, by bringing the university generally into direct contact with the citizen." The Division's organization and services include:

Center for Credit Programs
Correspondence Courses

Correspondence courses are available for credit toward a degree, for preparation for special occupations, or for self-improvement. Resident students at The University of Iowa must obtain the permission of the dean of their college to enroll in correspondence courses for degree credit.

Correspondence study is offered in accounting, American studies, anthropology, business administration, chemistry, classics, economics, education, English, French, geography, Greek, history, home economics, journalism, Latin, letters, mathematics, music, physical education, police science, political science, psychology, religion, social work, sociology, Spanish and speech and dramatic art.

There is a $5 enrollment fee. The course fee is $22 per semester hour. Fees are payable at the time of registration. A catalog including procedures and enrollment forms may be obtained from the Correspondence Study, W400 East Hall.

The University, in cooperation with the federal Department of Defense, offers many correspondence courses to men and women in the armed services. Personnel should visit their education officer. Veterans may enroll for correspondence courses concurrently with other academic study under Public Law 92-540. Veterans are referred to Veterans Affairs Office of the University.

Off-Campus Classes

The Division offers off-campus classes in liberal arts, business administration, education and engineering. Classes are scheduled at the request of public school officials, or where professional groups and industry indicate a specific need for educational services. Courses offered in business administration and engineering are scheduled on a contractual basis; courses in liberal arts and education require a minimum of 30 enrollies. For information, write to the Center for Credit Programs, W400 East Hall, The University of Iowa.

Saturday and Evening Class Program

This program provides credit course offerings for part-time undergraduate, graduate or postbaccalaureate students. Courses are offered from all schools and departments of the University. Through this program a selection of women's studies courses are offered. For a Saturday and Evening Class catalog, write to Saturday and Evening Class Program, W400 East Hall, The University of Iowa.

Bachelor of Liberal Studies Degree

The Bachelor of Liberal Studies degree is designed to serve adults who cannot attend college as full-time, on-campus students. Credit toward the degree, which is awarded by the College of Liberal Arts, may be earned through correspondence study, Saturday and Evening classes, off-campus courses, and newspaper, radio, and television courses. For information, write to the Center for Credit Programs, W400 East Hall, The University of Iowa.

Education Tests

Standardized tests and scales developed at The University of Iowa are published and distributed on a nonprofit basis to schools, public agencies and industrial firms in Iowa.
and throughout the nation. In addition, many other widely-used, commercially-produced standardized tests and scales with established national reputations are carried in stock for distribution. Buyers order test needs from this one source to save time and transportation costs. Orders received for items regularly carried in stock are usually shipped within 24 hours. For catalogs, write to Education Tests, C100 East Hall, The University of Iowa.

Center for Conferences and Institutes

The Center serves as the principal agency of the University for developing, coordinating and conducting nonprofit continuing education programs for nonresident 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 30,000 adults receive training in the Center's varied programs, which represent a cooperative endeavor between the Center and the various colleges, departments and disciplines within the University. The marshaling 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 training meeting.

The Director of Conferences is responsible for approving and conducting or coordinating all conference, institutes, short courses and similar nonprofit programs held in the Iowa Memorial Union for other than on-campus student groups. All members of the faculty and staff who plan University conferences and other University-related group functions are to be held on campus (or in the Iowa City-Marion area) are expected to coordinate these activities through the Conference Center office and to utilize the conference facilities, dining services and parking recommendations at the Iowa Memorial Union, to the extent they are available and appropriate.

Adult Education Mini-Course Program

This open enrollment program provides a wide variety of noncredit, short-course offerings of special interest to adults. Courses are normally conducted at the Iowa Memorial Union during evening hours by University-affiliated instructors. Continuing Education Units are awarded for course completion. For current catalog offerings, contact the Center for Conferences and Institutes.

Radio Broadcasting Services

WSUI and KSUI-FM serve the needs and interests of the people of eastern Iowa with an 18 hours/day, 365 days/year broadcast service which extends the resources and activities of the University. The broadcast schedule consists of educational, cultural and informative programming not available elsewhere. An affiliate of National Public Radio (NPR), WSUI contributes program materials to a national network of more than 180 non-commercial radio stations. The main studios and offices are located in 3300 Engineering Building and a free copy of the Program Guide may be obtained by writing to that address.

Institute of Public Affairs

The mission of the Institute is to help improve state, city and county governments in Iowa by serving as a 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 citizen 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 projects 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:

In-service 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 organizational needs as well as professional goals.

Research services, informational resources and publications ranging from practical handbooks to issue papers, and consultation services, ranging from answering "how-to" questions to serving on statewide committees, are other examples of work involving with major concerns of state and local governments.

Bureau of Police Science

The Bureau offers a series of law enforcement courses through correspondence study. In addition, the Bureau offers a variety of services to law enforcement agencies, including entrance and promotional examinations, general administrative or specialized surveys, and specialized training programs. It also carries out research programs in areas of public safety. Upon request by law enforcement agencies, the Bureau conducts personnel examination, administrative surveys and record surveys.

Iowa Center for Education in Politics

Supported by gifts from foundations and others and headquartered in the Division of Continuing Education, the Iowa Center for Education in Politics coordinates activities at all colleges and universities in Iowa, to encourage students to become active in political affairs. The Center also sponsors programs to help teachers improve their teaching about politics at the high school level. These programs are planned in cooperation with leaders of the legally recognized political parties of the state and college teachers and administrators.

Iowa Community Service and Continuing Education Program

The Division of Continuing Education serves as administrative and fiscal agent for the Iowa Community Service and Continuing Education Program, a cooperative state-federal program to extend the continuing education services of colleges and universities toward solving community problems and meeting continuing education needs of adults. A state advisory council assists in identifying community problems and continuing education needs, recommends appropriate institutional activities and approves
proposed projects submitted by colleges and universities in Iowa. The program was authorized by the U.S. Congress in Title I-A of the Higher Education Act of 1965.

Office of Community College Affairs

The Office of Community College Affairs (OCCA), which is closely aligned with the College of Education, is the liaison office between the University and Iowa's area community and vocational-technical colleges. In activities involving discipline articulation and student follow-up, OCCA extends its services to the private two- and four-year colleges in the state. The Office serves these educational systems and their respective personnel by providing these services:

- Provides liaison between the University and statewide professional educator associations as well as selected regional and national organizations, and conducts relevant research;
- Articulates university-community college faculty, student, institutional policy, and curricula;
- Provides in-service training opportunities for community college personnel, and assistance to the College of Education and other University colleges and departments in providing degree programs for community college personnel leading to state certification;
- Participates in state, regional, and national approval, accreditation and consultation activities; and
- Provides regular information, consultation, and coordination services for specialized groupings of community college personnel.

Iowa Lakeside Laboratory

The Division has general administrative supervision of the Iowa Lakeside Laboratory, a summer laboratory for the biological sciences on Lake Okoboji. 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.

Mecbride Field Campus

The University holds a lease from the U.S. Army Corps of Engineers on two tracts of land in the Coralville Reservoir area north of Iowa City. The two tracts total approximately 620 acres. One tract is reserved for biological research. The other for University-wide activities. Developments in the area to date include provision of an access road, water supply, electric power, maintenance storage facilities, a boathouse and saeing facilities, field archery course, facilites for handicapped persons and picnicking areas.

Audiovisual Center

The mission of the Audiovisual Center is to assist in the improvement of the teaching-learning process through the effective use of educational media. Services and facilities include:

- Media Development
  The Audiovisual Center staff is available to assist faculty and staff in the solution of instructional problems related to the design of learning systems and facilities, and the selection and production of educational media.

- Media Library
  The Media Library provides a major collection of 16mm instructional films, available on campus without charge, for instruction and curriculum-related activities, and for rental to off-campus requestors. Smaller collections of audio and video recordings, filmstrips, and slides, plus facilities for student or faculty utilization, are also available. Catalogs of these collections are available upon request. A reference collection of materials from other sources is also maintained.

Campus Service

Audiovisual equipment available without charge for instructional use includes film, slide, filmstrip, opaque and overhead projectors; portable projection screens; audio-tape recorders; record players; portable public-address systems; and display devices (erasers, 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 AV equipment including TV systems.

Media Production

Professional services, facilities, and equipment are available to produce original software in all media: graphics—layout, paste-up, illustrations, charts, graphs, lettering, etc.; audio—recording, editing, duplication, transcription services; motion pictures—safety, cinematography, editing, complete processing and printing laboratory; photography—portraiture, passport, slide shows, filmstrip, 35mm slide duplication; complete printing and processing services; television—video production, color and black & white (1 inch and cassette); systems design; equipment maintenance; portapak rental; fabrication—design and construction of displays, specialized audiovisual equipment and furniture.

Satellite Centers

Satellite centers are established as needs arise through cooperative arrangements between the Audiovisual Center and departments, schools, colleges and other service agencies. Currently they include the Medical Audiovisual Center, Dental Audiovisual Center, Nursing Audiovisual Center, the Educational Media Laboratory, and the Music Audiovisual Center.
Administrative Officers

State Board of Regents

The University of Iowa, Iowa State University of Science and Technology, the University of Northern Iowa, the Iowa State and Yellow-Bundy Schools, and the Iowa School for the Deaf are governed by the State Board of Regents, consisting of five members. The Board meets at least four times a year.

President: Mary Louise Patterson, Honey
V.P. R. D. Johnson, M. J. G. Kinney
Secretary: Daniel H. O'Brien
Treasurer: David E. Rosen
Auditor: John A. Mooney

Central Administration

President: Wilbur J. Young
Vice-President for Academic Affairs and Dean of the Faculty: Mary Woodburn
Vice-President for Administrative Services: William W. Shure
Vice-President for Planning and Research: Dean of the College: Donald C. Schrader
Vice-President for Finance and University Services: Edward A. Jernigan
Vice-President for Student Services and Dean of Academics: Philip D. Hughes

Academic Affairs

Vice-President and Dean of the Faculty: Mary Woodburn

College of Business Administration

Dean: J. Richard Zachary
Center for Labor and Management Director: Donald McGraw

College of Dentistry

Dean: James H. McLellan

College of Education

Dean: Howard E. Jones

College of Engineering

Dean: Robert S. Jordan

Graduate College

Dean: Duane C. Noreen

Institute of Hygienic Research: Dean F. Kennedy

College of Law

Dean: H. William Hines

College of Liberal Arts

Dean: Howard L. Lavity

School of Art and Art History: Director: Howard L. Lavity
School of Journalism: Director: Howard L. Lavity
School of Music: Director: Howard L. Lavity
School of Speech: Director: Howard L. Lavity
School of Visual Arts: Director: Howard L. Lavity

School of Medicine

Dean: John W. Oates

College of Nursing

Dean: Evelyn Smith

College of Pharmacy

Dean: Dale E. Wroten

Division of Continuing Education

Director: Robert F. Ray

Division of Sponsored Programs

Director: Gregory E. Hopkins

Project Office: Development

Director: John D. McMillen

Institute of Child Behavior and Development

Director: Ronald E. Schuh
Health Services Research Center
Director: Gerald Robinson
Office of International Education and Services
Director: Sonja M. Aron
Weeg Computing Center
Acting Director: James W. Johnson
Public Information and University Relations
Director: Thomas L. Taba
Radiation Protection
Director: William E. Tweed
State Archaeologist
Douglas C. Anderson
University House
Acting Director: William J. Farrell
University Press
Director: John Simmons
Institute of Urban and Regional Research
Director: Kenneth J. Dusart

Student Services
Vice-president: Philip O. Halverson
Admissions
Director: John E. Meyer
Registrar
University Registrar and Dean of Convocations: W. Albert Grif
Iowa Center for the Arts
Coordinator and Director of Auditors: James H. Yockel
Iowa Memorial Union
Manager: James M. Burke
Student Activities
Director: Peter S. Vries
Campus Information Center
Director: Joan Kangas
Career Services and Placement
Director: Charlotte Hamilton
University Counseling Service
Director: Ursula Deynworth

Special Support Services
Director: M. Colleen Jones
Student Financial Aid
Director: John E. Moore
University Examination and Evaluation Services
Director: Donald R. Whitney
Recreational Services
Director: Henry R. Clarno

Finance and University Services
Vice-president: Edward H. Jennings
Business Office
Business Manager and Secretary: Reg S. Nussman
Controller and Secretary: William P. Brooks
Physical Plant
Director: James A. Hultsch

Administrative Services
Vice-president: William M. Shahnauer
University Personnel Service
Director: Fred H. Ocker
Residence Services
Director: Milton D. Livingston
Facilities Planning and Utilization
Director: Richard G. Simon
Museum of Art
Director: Jan K. McKellar
Old Capitol
Director: Margaret Keppel
University Architect
Richard F. Johnson
Environmental Health Services
Director: Franklin J. Kaltenbach
Service for Handicapped Students: Rebecca Phillips

University Health Services
Assoeiate in the President for Health Services: John W. Colton
University Hospitals and Clinics
Director: John W. Colton

Psychiatric Hospital
Director: George Winistor
State Hygienic Laboratory
Director: William J. Huster
University Hospital School
Director: Alfred Heady
Student Health
Director: Howard C. Toffle
State Services for Crippled Children
Director: John G. McKeehan

General University
Alumni Association
Executive Director: Joseph W. Meyer
Intercollegiate Athletics for Men
Director: Orville W. Biltz
Intercollegiate Athletics for Women
Director: Orville W. Biltz
University of Iowa Foundation
Executive Director: Daniel D. Wyre.
Bennett, Shelley, B.A. California (Riverside) 1969, M.A. California (Los Angeles) 1975, Ph.D. 1977, assistant professor, School of Art and Art History, 1979
Bentz, Dale M., B.A. Gettysburg 1929, M.S.L.S. North Carolina 1940, M.S. Illinois 1951, professor, School of Library Science, 1953 (1964)
Bentz, Gladys, B.S. Columbus 1921, M.A. Michigan State 1940, professor emeritus, Nursing, 1958 (1964)
Berardi, Romeo S., B.S. Boston (Chestdale Hill) 1932, M.S. 1935, M.D. Rome (Italy) 1958, clinical associate professor, Surgery, 1974
Berbaum, Kenith S., B.A. Millikin 1971, Ph.D. State University of New York (Buffalo) 1977, instructor, Psychology, 1979
Berg, John W., B.S. Yale 1948, M.D. 1951; medical assistant, Preventive Medicine and Environmental Health, 1972
Bergan, Odette P., M.D. Vienna (Australia) 1828, J.D. 1835, Ph.D. Gottingen (Sweden) 1862, professor emeritus, Pharmacy, 1974 (1978)
Berry, Clyde M., B.S, McKendree 1930, M.S. Illinois 1936, Ph.D. 1941; professor, Preventive Medicine and Environmental Health, 1955 (1965)
Bishop, Doris E., M.S.W. Minnesota 1954; adjunct instructor, School of Social Work, 1977
Black, Harold J., B.S. Iowa 1953, M.S. 1955; assistant professor, Pharmacy, 1962 (1965)
Black, Peter C., B.A. Wheaton 1958, M.D. Western Reserve 1963; clinical assistant professor, Internal Medicine, 1969
Bloed, Frederick C., M.D. Vienna (Austria) 1964, professor emeritus, 1955 (1965)
Boegarde, Jerry, M.S.W. Virginia Commonwealth 1968; adjunct instructor, School of Social Work, 1975
Bond, Perry A., B.S. Iowa 1901, M.A. 1908, Ph.D. 1915; professor emeritus, Chemistry, 1908 (1947)
Borts, Irving H., M.D. Iowa 1928; professor emeritus, Preventive Medicine and Environmental Health, 1929 (1954)
Bosch, Peter, Natur- Bundes-Museum der Freien Stadt Berlin 1936, M.D. Innsbruck (Austria) 1936; professor, Veterinary Medicine, 1947 (1958)
Bowman, Albert W., M.D. Yale 1947; assistant professor, Obstetrics and Gynecology, 1957
Bourgeois, Jacques A., M.A., St. Louis 1965; Ph.D. Iowa 1972; associate professor; French and Italian, 1989 (1989)
Bourjolly, Vance, B.A. Bowdoin 1944; professor, English, 1972 (1973)
Bow, Warren J., B.A. Michigan 1960; M.J. California (Berkeley) 1971; assistant professor; School of Journalism, 1977
Bowers, John Walter, B.S. Kennesaw 1958; M.A., Ph.D. Iowa 1959; professor, Speech and Dramatic Art, 1952 (1956)
Boyle, Philip F., Jr., D.D.S. Georgetown 1957; adjutant inspector, Preventive and Community Dentistry, 1957
Boyum, James F., B.S., M.Vet. (Veterinarian) 1948, B.M. 1947, M.D. 1948; clinical assistant professor; Pediatrics, 1978
Branth, Berkeley, B.A. Virginia 1953; M.D. 1970; associate professor; Neurology, 1977
Bretton, Barry D., Ph.D. Michigan State 1970; assistant professor; Instructional Design and Technology, 1975
Brester, Hama, associate professor, School of Art and Art History, 1966 (1971)
Breslow, Kenneth, B.S. Brooklyn College of Pharmacy 1970, M.S. Southern California 1973; clinical assistant professor, Pharmacology, 1975
Brief Arthur P., B.S. Tennessee 1968; M.S. Wisconsin 1971; Ph.D. 1974; associate professor; Biophysics Administration, 1975 (1978)
Brubaker, Ray, B.A. New York 1941; M.A. Iowa 1945, Ph.D. 1947; research professor, Psychology, 1974
Brown, Donald D., B.A. Iowa 1962; M.S. 1965, M.D. 1968; associate professor; internal medicine, 1973 (1978)
Brown, James C., M.B.B.Ch. National University of Ireland 1950, M.S. Iowa 1964; clinical assistant professor; Psychiatry, 1960
Brown, Marie E., B.A. Michigan 1946, M.A. 1951; Ph.D. 1954; professor, English, 1957
Brown, Robert C., B.S. Portland 1946, M.D. Loyola University Chicago 1948; professor, Radiology, 1969 (1979)
Bryant, Donald C., B.A. Cornell 1937, M.A. 1930; Ph.D. 1937; professor emeritus, Speech and Dramatic Art, 1958 (1973)
Buchanan, Edward B., Jr., B.S. Detroit 1950; M.S. 1954, Ph.D. Iowa State 1955; associate professor, Chemistry, 1958 (1967)
Buckley, John E., B.S. California State (Barkley) 1926, M.S. 1940, Ph.D. California 1950; professor, Chemistry, 1945 (1950)
Buckley, Helen A., B.A. California State University 1935; Ph.D. 1939; professor, Law, 1974
Bull, associate professor; B.S. South Carolina 1927, M.S. Minnesota 1928, Ph.D. 1930; professor emeritus, Biochemistry, 1952 (1973)

Kwatra, Mammothial, M.B.B.S. Osmania Medical College 1965, M.D. 1965; clinical assistant professor, Internal Medicine, 1977

Labrecque, Douglas R., B.S. Boston (Chesterhill) 1969, M.D. Stanford 1970; assistant professor, Internal Medicine, 1977


Lachmanbruck, Peter A., B.A. California (Los Angeles) 1958, M.S. La Jolla 1961, Ph.D. California (Los Angeles) 1965; professor. Preventive Medicine and Environmental Health, 1975


Laffon, Laurence D., B.A. Swarthmore 1930, M.A. Fletcher School of Law and Diplomacy 1939, Ph.D. Tufts 1950; professor. History, 1969

 Lalisse, Leopold, assistant professor. School of Music, 1972

Laghezza, Valerie M., B.A. Loyola University Chicago 1931, M.A. Stanford 1934, Ph.D. 1940; professor, English. 1972 (1973)


Lambert, Howard W., B.A. California (Berkeley) 1900; M.S. Iowa State 1901, Ph.D. Utah 1909; professor. Mathematics. 1905 (1977)


Lane, Willard R., B.S. Wisconsin State 1941, M.A. Wisconsin 1946, Ph.D. 1951; professor. Educational Administration, 1961


Larson, Karl, B.A. St. Olaf 1956, M.D. Northwestern 1963; clinical assistant professor. Internal Medicine, 1974


Larson, Erling, M.D. Iowa 1948; clinical associate professor, Internal Medicine, 1975

Lasansky, Mauricio, D.F.A. Iowa Wesleyan 1943; Honorary professor. School of Art and Art History, 1943 (1953)


Latourette, Howard S., A.B. Oberlin 1940, M.D. Michigan 1943; professor, Radiology, 1956


Levin, Marvin, B.S. Central YMCA 1945, M.A. Chicago 1943, M.A. 1948, Ph.D. Iowa 1971; assistant professor. Instructional Design and Technology and Division of Continuing Education, 1971

Levin, Mildred H., B.Ed. Chicago Teachers College North 1964, M.A. "Northeastern Nebraska State 1969, Ph.D. Iowa 1971; assistant professor. Instructional Design and Technology and Division of Continuing Education, 1971


Lee, Joe Rob, B.A. Soonam School (Korea) 1949, M.D. 1954; clinical associate professor. Internal Medicine, 1977


Lee, U., B.A. B.S. Sook-Da Medical (Korea) 1958, M.D. Korea 1962; clinical assistant professor, Pediatrics, 1975


Lempert, W., B.S. Yale 1942; professor, English. 1970 (1973)

Lehrfield, P. J., B.A. Wisconsin 1928, M.D. 1932; associate professor, Ophthalmology, 1933 (1937)


Lemot, David K., B.S. Iowa 1968, M.D. 1974; clinical assistant professor, Internal Medicine, 1977
The following is extracted from the Board of Regents' section of the Iowa Administrative Code. The Code is updated by the Code Editor on a biennial basis. This reader should consult the Code for any changes made to the Code subsequent to March 15, 1976.

Residence

720-14(262) Classification of residents and nonresidents for admission and fee purposes.

1.4(1) General.

Students applying at any one of the three state institutions shall be classified as resident or nonresident for admission, fee and similar purposes to the institution. The decision shall be made on the basis of the student’s residential status at the time of application and with the additional information necessary to make the classification. The registrar is authorized to require such written documents, affidavits, certificates, or other evidence necessary to establish the domicile of a student, including proof of an ancestor, adoption, transfer of title by a parent or parent’s legal guardian, or reclassification in any other manner that would support the classification of the student as a resident or nonresident for admission purposes.

For purposes of resident and nonresident classification, the word "parent" as herein used shall include legal guardian or emancipated minor in any case where the student bears evidence of having been educated in a public school of the state in which the student is attending for the purpose of pursuing a course of study.

1.4(2) Residence for tuition purposes.

Rules regarding residence for admission, fees and tuition purposes are generally divided into two categories—those that apply to students who are over the age of eighteen years and those that apply to students who are under the age of eighteen years. The determination of residence requirements in these categories are different. Consideration of the student's domicile at the time of application is essential for accurate classification of the student.

1.4(3) Students who are minors.

The residence of a minor shall be that of the parents at all times, except in extraordinary cases where emancipation are we deemed beyond question. The residence of neither the minor nor the parents at the time of application is necessary to establish the classification of the minor. If the minor and the parents are residents of the state, the classification of the minor is determined by the domicile of the parent with whom the minor resides or to whom the minor has been assigned by court order.

1.4(4) General facts.

The resident status of admitted, fee and tuition purposes shall be determined on the basis of the classification of the student. A student may qualify as a resident or nonresident for admission purposes at any time during the period of the student's enrollment at the institution.

Persons who are residing in the state at the time of enrollment in the institution or in the state at the time of the beginning of the current semester shall be considered to be residents of the state of Iowa. The classification of the student shall be determined by the domicile or the residence of the parent or legal guardian of the student.

Every student classified as a nonresident for admission purposes may continue to be classified as resident as long as such residence is
nights, even though circumstances may require attendance at an event that is not in keeping with the strict dress code of the formal institution. The concern is that the expected level of formality may be so high that even in a less formal setting, students would still need to dress in a manner that reflects the values and expectations of the community.

Section 2.1 Guidance and Enforcement

2.1.1 The student conduct office will monitor the implementation and enforcement of the dress code, and will conduct regular audits to ensure compliance. Any student违反ing the dress code will be subject to disciplinary action, which may include fines or suspension.

2.1.2. The implementation of the dress code will be guided by the principles of respect, dignity, and fairness. The responsibility for enforcement lies with the student conduct office, which will work closely with other campus departments to ensure consistent and fair enforcement.

2.1.3. The dress code will be reviewed annually to ensure its relevance and effectiveness. Any changes will be communicated to the students and faculty in a timely manner.

2.1.4. The dress code applies to all on-campus events and activities, including lectures, workshops, and social gatherings. The enforcement of the dress code will be consistent across all locations and departments.

2.1.5. The dress code does not apply to off-campus events or activities, and students are encouraged to follow the dress code when attending such events.

2.1.6. The dress code does not apply to students who reside in off-campus housing, as long as they are not participating in any on-campus events or activities.

Section 2.2 dress code violations

2.2.1. Students who are found to be in violation of the dress code may be subject to disciplinary action, which may include fines or suspension.

2.2.2. The dress code violations will be handled according to the procedures outlined in the student conduct office manual, which includes a process for hearings and appeals.

2.2.3. The dress code violations may result in a loss of academic credit or a failure of the course.

Section 2.3 Enforcement

2.3.1. The enforcement of the dress code will be guided by the principles of respect, dignity, and fairness. The responsibility for enforcement lies with the student conduct office, which will work closely with other campus departments to ensure consistent and fair enforcement.

2.3.2. The enforcement of the dress code will be consistent across all locations and departments.

2.3.3. The enforcement of the dress code will be monitored regularly to ensure compliance and effectiveness.

2.3.4. The enforcement of the dress code will be guided by the principles of respect, dignity, and fairness.

2.3.5. The enforcement of the dress code will be consistent across all locations and departments.

2.3.6. The enforcement of the dress code will be monitored regularly to ensure compliance and effectiveness.

Section 2.4 appeal process

2.4.1. Students who are found to be in violation of the dress code may appeal the decision through the procedures outlined in the student conduct office manual, which includes a process for hearings and appeals.

2.4.2. The appeal process will be guided by the principles of respect, dignity, and fairness.

2.4.3. The appeal process will be consistent across all locations and departments.

2.4.4. The appeal process will be monitored regularly to ensure fairness and effectiveness.

2.4.5. The appeal process will be guided by the principles of respect, dignity, and fairness.

2.4.6. The appeal process will be consistent across all locations and departments.

2.4.7. The appeal process will be monitored regularly to ensure fairness and effectiveness.
Admission Rules Common to the Three State Universities

720-1.1(262) Admission of freshman students.

It is the policy of the University that admission to the University's campuses is based on academic achievement. Each applicant is evaluated on the basis of their high school transcript, standardized test scores, and any additional information provided. The applicant must also submit any other supporting documentation or materials as required by the University. The University reserves the right to refuse admission to an applicant for any reason.

720-1.2(262) Admission of undergraduate students by transfer from other colleges.

1.2(1) Students from accredited colleges and universities.

Transcripts of recent are given to all students in good standing who are admitted to the University. Each student's record is reviewed by the University to ensure compliance with University guidelines. The University reserves the right to deny admission to any student who is not in compliance with University regulations.

720-1.2(262) Application deadlines.

Applicants for admission must meet the minimum requirements established by the University. The application deadline for the fall semester is September 1. The application deadline for the spring semester is December 1. The application deadline for the summer semester is March 1. All applications must be submitted by the stated deadlines.

Supplemental Specific Rules for The University of Iowa

The following requirements are in addition to those given in this section.

720-2.1(262) Formal application for admission.

All applicants to any college of the University of Iowa must submit a formal application for admission with the required supplemental materials and supporting documentation as required by the director of admissions. Students may be pre-registered if they have been accepted as an incoming student by the director of admissions.

720-2.2(262) Paratetal rules.

All students and faculties and students are required, as a condition of registration at the University of Iowa for the semester or session, to hold in university residence halls, except that such students shall not be required of any student beyond the junior students, the following the normal semester from the University. Students who fail to comply with these rules shall be subject to disciplinary action.

2.1(1) Exceptions.

Students enrolled in the anticipated survey system are exempt from the following requirements:

The Director of Admissions, in consultation with the appropriate academic department, may grant exceptions to these requirements for students who hold academic or professional degrees from outside the United States.
2.3(1) Application for admission.

Applications for admission to the College of Business Administration should be submitted to the director of the college.

Applications are accepted as early as possible, since the college gives the applications the most time to determine admission. 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. A high school diploma or its equivalent.

b. A minimum grade-point average of 2.5 on a 4-point scale, with 4 representing the highest achievement.

2.3(2) 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 time to work in advance of the opening date of any session.

Applications for admission to the college of business administration should be submitted to the director of the college.

Applications are accepted as early as possible, since the college gives the applications the most time to determine admission. Closing dates for receiving applications will be announced in advance of the opening date of any session.
2.5(2) Admission of undergraduate students by transfer.

The applicant must meet a formal application and official transcript of college work. Each applicant should have:

a. Maintained satisfactory progress in mathematics.

b. Maintained satisfactory progress on the common 14 required admission examinations.

c. Maintained a satisfactory cumulative grade-point average on all college work taken.

From applicants who do not meet the above requirements, the student admissions committee will review individual records and make their own decision.

File Mar. 15, 1962; amended March 10, 1966

720-2.6(262) Graduate College.

Graduate of any college or university accredited by regional accrediting agencies may, if the student desired, be admitted to the graduate college. Admission to the graduate college is at the discretion of the student admissions committee based on the student's performance and approval of the dean of the appropriate college.

A student who is not a graduate of the University of Idaho may be admitted to the graduate college.

A student who is not a graduate of the University of Idaho is not eligible for admission to the graduate college.

720-2.7(262) College of Law.

2.7(1) Application for admission.

Address all inquiries regarding admissions to the Director of Admissions, University of Idaho, Moscow, Idaho 83843. The Director will be the authority for the formal application and the determination of the opening and closing dates of any application.

To be considered for admission, an applicant should have

a. Maintained a cumulative grade-point average of at least 3.0 or better. Official transcripts are required. The University of Idaho's entering student must be a graduate of a program accredited by an appropriate agency or a four-year college in the United States.

b. Completed an LSAT test.

c. Completed an application form.

d. Maintained a satisfactory cumulative grade-point average on all college work taken.

Applicants for admission must present a baccalaureate degree from a regionally accredited college or university prior to admission to the College of Law.

Each applicant for admission must take the Law School admission test. The test is administered by the Law School Admissions Services, Princeton Review, New York, New York. Information is available from the college of law.

The test is given several times a year and may be taken at numerous locations in the United States and throughout the world. Applicants are urged to take the test as often as necessary prior to admission for the fall semester in which they are applying. Accept upon a showing of necessity, an applicant who is not able to take the test as often as necessary before the fall semester in which the applicant is applying.

Fullfilment of the specific requirements for admission for applicants who are not graduates of the University of Idaho are shown in the college of education.

When an applicant is admitted, the offer of admission is made contingent upon the completion of the specific requirements for admission.

2.7(2) Admission with advanced standing.

A transfer student may be eligible for advanced standing if he or she desires. An applicant who is registered at the University of Idaho and meets the requirements of the University of Idaho for advanced standing must follow the procedures outlined for admission for the first-year student.

File 6/28/82; amended 12/14/82; 11/17/77

720-2.8(262) College of Medicine.

2.8(1) Application for admission.

Address all inquiries regarding admissions to the Director of Admissions, University of Idaho.

Applications are to be submitted as early as possible, since the college will begin accepting applications on a rolling basis. During the regular term in which applications are accepted, the college will begin reviewing applications in the order in which they are received.

File 6/28/82; amended 12/14/82; 11/17/77

2.8(2) Admission to advanced standing.

If their work is satisfactory, applicants to the College of Medicine may be considered for advanced standing. Transfer students applying for advanced standing must provide the college of medicine with an official transcript from each college attended.

Applicants who have completed the baccalaureate degree and received a degree from a regionally accredited college or university prior to admission to the College of Medicine.

Applicants who have completed the baccalaureate degree and received a degree from a regionally accredited college or university prior to admission to the College of Medicine may be considered for advanced standing.

2.8(3) Admission to advanced standing.

The college of medicine shall admit students to advanced standing in accordance with the policies established by the college of medicine.

The college of medicine shall only accept applications for advanced standing from students who have completed the baccalaureate degree and received a degree from a regionally accredited college or university prior to admission to the College of Medicine.

Applications will only be accepted from students who have completed the baccalaureate degree and received a degree from a regionally accredited college or university prior to admission to the College of Medicine.

The college of medicine shall not consider applications for advanced standing from students who have completed the baccalaureate degree and received a degree from a regionally accredited college or university prior to admission to the College of Medicine.

2.8(4) Admission to advanced standing.

The college of medicine shall not consider applications for advanced standing from students who have completed the baccalaureate degree and received a degree from a regionally accredited college or university prior to admission to the College of Medicine.

The college of medicine shall only accept applications for advanced standing from students who have completed the baccalaureate degree and received a degree from a regionally accredited college or university prior to admission to the College of Medicine.

Applications will only be accepted from students who have completed the baccalaureate degree and received a degree from a regionally accredited college or university prior to admission to the College of Medicine.

The college of medicine shall not consider applications for advanced standing from students who have completed the baccalaureate degree and received a degree from a regionally accredited college or university prior to admission to the College of Medicine.

2.8(5) Admission to advanced standing.

The college of medicine shall only accept applications for advanced standing from students who have completed the baccalaureate degree and received a degree from a regionally accredited college or university prior to admission to the College of Medicine.

The college of medicine shall not consider applications for advanced standing from students who have completed the baccalaureate degree and received a degree from a regionally accredited college or university prior to admission to the College of Medicine.

Applications will only be accepted from students who have completed the baccalaureate degree and received a degree from a regionally accredited college or university prior to admission to the College of Medicine.

The college of medicine shall not consider applications for advanced standing from students who have completed the baccalaureate degree and received a degree from a regionally accredited college or university prior to admission to the College of Medicine.

2.8(6) Admission to advanced standing.

Applications will only be accepted from students who have completed the baccalaureate degree and received a degree from a regionally accredited college or university prior to admission to the College of Medicine.

The college of medicine shall not consider applications for advanced standing from students who have completed the baccalaureate degree and received a degree from a regionally accredited college or university prior to admission to the College of Medicine.

Applications will only be accepted from students who have completed the baccalaureate degree and received a degree from a regionally accredited college or university prior to admission to the College of Medicine.

The college of medicine shall not consider applications for advanced standing from students who have completed the baccalaureate degree and received a degree from a regionally accredited college or university prior to admission to the College of Medicine.

Applications will only be accepted from students who have completed the baccalaureate degree and received a degree from a regionally accredited college or university prior to admission to the College of Medicine.

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The college of medicine shall not consider applications for advanced standing from students who have completed the baccalaureate degree and received a degree from a regionally accredited college or university prior to admission to the College of Medicine.

Applications will only be accepted from students who have completed the baccalaureate degree and received a degree from a regionally accredited college or university prior to admission to the College of Medicine.
2.0(3) Unclassified students.

Applications for admission to the College of Medicine who are not candidates for a degree but who desire to register for certain courses will be admitted to the various courses only upon consulting with the registrar and obtaining the approval of the school of the program of study desired. Such courses are limited to those which are not required for the degree of Doctor of Medicine.

2.10(5) Current requirements.

Applications for admission to the College of Pharmacy must be submitted before the 1st of May of the year in which the student expects to graduate from high school. The student must have completed all of the requirements for admission to the College of Pharmacy as outlined in the degree requirements for the degree of Bachelor of Science in Pharmacy. The application must be filed before the 1st of May of the year in which the student expects to graduate from high school.

2.10(3) Scholarship and application deadline.

The scholarship deadline is March 1 of the year in which the student expects to graduate. The student must be enrolled in the College of Pharmacy before the deadline.

2.10(4) Required tests.

Applicants for admission are required to take the American College Testing Program test.
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