The University of Iowa General Catalog 2004-2005

The General Catalog is published for informational purposes and should not be construed as the basis of a contract between a student and The University of Iowa. Every effort is made to provide information that is accurate at the time of printing. However, information on courses, curricula, fees, policies, regulations, and other matters is subject to change at any time during the period for which the Catalog is in effect.

The University's annual viewbook and Transfer Guide provide condensed general information for prospective first-year and transfer students concerning University colleges, schools, and other units. Also included is information on admission, fees, scholarships, student financial aid, housing, and student services. An online course schedule (http://isis.uiowa.edu/courses) provides information about which courses are offered in a particular semester.

For information on areas of study and application for admission, contact the Office of Admissions, The University of Iowa, 107 Calvin Hall, Iowa City, IA 52242-1396; toll-free nationwide 1-800-553-IOWA (4692); direct dial 319-335-3847.
E-mail: admissions@uiowa.edu
Web site: http://www.uiowa.edu/admissions

For housing information and application, contact the Housing Office, The University of Iowa, 17 Burge Hall, Iowa City, IA 52242-1298; 319-335-3009.
E-mail: reshall-housing@uiowa.edu
Web site: http://www.housing.uiowa.edu

For information about scholarships, loans, and student employment, contact the Office of Student Financial Aid, The University of Iowa, 208 Calvin Hall, Iowa City, IA 52242-1315; 319-335-1450.
E-mail: financial-aid@uiowa.edu
Web site: http://www.uiowa.edu/financial-aid

For information about the University Honors Program, contact the Honors Program, The University of Iowa, 420 Blank Honors Center, Iowa City, IA 52242-0454; 319-335-1681.
E-mail: honors-program@uiowa.edu
Web site: http://www.uiowa.edu/~honors

The University of Iowa prohibits discrimination in employment and in its educational programs and activities on the basis of race, national origin, color, creed, religion, sex, age, disability, veteran status, sexual orientation, gender identity, or associational preference. The University also affirms its commitment to providing equal opportunities and equal access to University facilities. For additional information on nondiscrimination policies, contact the Coordinator of Title IX, Section 504, and the ADA in the Office of Equal Opportunity and Diversity, 319-335-0705 (voice) and 319-335-0697 (text), 202 Jessup Hall, The University of Iowa, Iowa City, IA 52242-1316.

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University Calendar

2004
August 23
September 6
November 22-27
November 25-26
December 10
December 13-17
December 17-18
December 23-24
December 27-January 14
December 31

Fall Semester/Winter Session
Classes begin
University holiday
Thanksgiving recess
University holidays
Classes end
Examination week
Commencement ceremonies
University holidays
Winter session
University holiday

2005
January 17
January 18
February 25
March 14-19
May 6
May 9-13
May 12-15, June 3

Spring Semester
Martin Luther King Day (University holiday)
Classes begin
Foundation day
Spring vacation
Classes end
Examination week
Commencement ceremonies

2005
May 16-June 3
May 30
June 6-July 29
June 20-July 29
July 4

Summer Sessions
May summer session
University holiday
Eight-week summer session (first day is registration)
Six-week summer session (first day is registration)
University holiday

Some dates may change; the most up-to-date academic calendar is available online at http://www.uiowa.edu/registrar

Campus Visits for Prospective Students
The best introduction to The University of Iowa is a visit to the campus. Come first to the John G. Bowman House Admission Visitors Center, 230 N. Clinton St. Office hours: weekdays 8:30 a.m. to 4:30 p.m. and selected Saturday mornings. It is best to visit the campus on weekdays, when classes are in session and when other University offices are open. Please call the Office of Admissions to arrange for a campus visit: toll-free nationwide 1-800-553-IOWA (4692); direct dial 319-335-1569.

Visit The University of Iowa online at http://www.uiowa.edu
# College of Liberal Arts and Sciences

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Dean: Linda Maxson
Executive associate dean: Raúl Curto
Interim associate dean for academic programs: Helena Dettmer
Associate dean for research and development: Joseph K. Kearney
Web site: [http://www.clas.uiowa.edu](http://www.clas.uiowa.edu)
The College of Liberal Arts and Sciences (CLAS) is the oldest and largest of the 11 colleges that make up The University of Iowa. Students from all over the United States and more than 50 other nations study together in the college. Every University of Iowa undergraduate takes courses offered by the college, and more than 75 percent of undergraduates earn their degrees from the College of Liberal Arts and Sciences.

The college provides a comprehensive liberal arts education and advanced education in specialized areas. It offers more than 50 majors, as well as certificates, minors, and opportunities for interdisciplinary work. Students can even design their own majors, through the B.A. in Interdepartmental Studies.

Students participate in the college’s decisions by serving on the Dean’s Student Advisory Committee and as members of the Educational Policy Committee and the General Education Curriculum Committee. Students also are invited to serve on ad hoc college committees. Many departments have an undergraduate student group or association, and students from the College of Liberal Arts and Sciences serve in the University’s Student Government.

The College on the Internet

The college’s web site (http://www.clas.uiowa.edu) serves as a gateway to departmental web sites, where departments post extended and updated information about their programs, faculty, and students. The college’s site also includes information from the Office of the Dean and the CLAS Academic Programs & Services office, news of the college, and links to other helpful sites. Students can find information on academic policies and procedures, including the college’s General Education Program, in the Student Academic Handbook. A print version of the college’s handbook is published each fall as part of the booklet Information for University of Iowa Students.

CLAS Academic Programs & Services Office

The CLAS Academic Programs & Services office is an integral part of the College of Liberal Arts and Sciences Office of the Dean. Led by the associate dean for academic programs, the staff welcomes students wishing to declare or change majors, file second-grade-only options, or request permission to register late, add or drop a course late, or withdraw an entire registration after the established deadlines.

Staff members answer questions about the General Education Program, graduation requirements, and college policies affecting students; work with students on academic probation and those who are reinstated; conduct seminars for new students on academic progress and provide consultation to students who do not meet academic standards, and respond to requests for reinstatement to the college.

Students in the College of Liberal Arts and Sciences may request exceptions to the rules and requirements of the college by petitioning the Student Appeals Committee through CLAS Academic Programs & Services.

CLAS Academic Programs & Services also considers evidence and recommends appropriate disciplinary action for student plagiarism, cheating, forgery, and other academic misconduct.

Nondepartmental Courses

610:029 First-Year Seminar 1-2 s.h. Small discussion class taught by a faculty member, topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

610:030 Leadership in a Diverse Society 1 s.h. Elements of diversity and culture (e.g., race/ethnicity, gender, class, disability, sexual identity, religion, geography), multidisciplinary perspectives and materials, understanding of one’s self and others, with the goal of developing skills necessary in today’s world.

610:099 Peer Mentoring 1-2 s.h. Opportunities to participate in classroom and course activities as mentors for other students.

610:150 U.S. Latino/a Cultural Studies 3 s.h. Topics vary.

AFRICAN AMERICAN WORLD STUDIES

Professors: Peter Nazareth (English/African American World Studies), Horace Porter (African American World Studies/English)


Undergraduate degree: B.A. in African American World Studies

Undergraduate nondegree program: minor in African American Studies

Graduate degree: M.A. in African American World Studies

Graduate nondegree programs: cognate concentrations leading to M.A. and Ph.D. in American Studies and other programs

Web site: http://www.uiowa.edu/~afram

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

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

The department originated in 1969 through courses intended to foster awareness of African Americans’ role in the development of the United States; those courses also were designed to promote understanding of the conditions and concerns of African Americans. Since then, the courses have been organized into a curriculum that includes a Bachelor of Arts in African American World studies, an undergraduate minor in African American studies, a Master of Arts in African American studies, and concentrations of African American studies in programs leading to a B.A., M.A., or Ph.D. in American studies.

Students seeking the Ph.D. in English or history also can organize courses in African American literature or African American history into a special field or cognate area.

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

Undergraduate Program

Bachelor of Arts

The major in African American world studies requires 30-33 s.h. (10 or 11 courses). At least 15 s.h. must be earned in courses numbered 100 or above. Students must maintain a g.p.a. of at least 2.00 in the major. Transfer course work is evaluated individually.

INTRODUCTORY COURSES

Students are required to complete both 129:060 Introduction to African American Society and 129:061 Introduction to African American Culture.

Introduction to African American Society presents thematic concerns of peoples of African descent and matters related to the Diaspora. The course includes a socioeconomic approach and may include readings in political science, history, sociology, geography, anthropology, and other disciplines. Introduction to African American Culture presents themes in African American cultural studies. It includes readings in literature, music, film studies, religious studies, and the visual arts.

Neither 129:060 nor 129:061 is a prerequisite for 100-level courses, but majors are strongly urged to take at least one of the introductory courses before enrolling in advanced courses.

SOCIAL SCIENCE AND HUMANITIES CORE

Students are required to take two core courses (3 s.h. each), one each in the humanities and social sciences. Students may choose from courses in African, Caribbean, or African American literature or African, Caribbean, or African American history. The department maintains a list of approved courses. Students who wish to substitute related courses offered by other departments should consult the director of undergraduate studies.

FOCUS AREA

Students select six courses (total of 18 s.h.) that constitute a focused area of interest. The focus
area may include courses in the social sciences, humanities, or arts. Courses offered by other departments and cross-referenced with African American world studies may be counted toward this requirement.

With approval from the department, students may enroll in one or two courses offered by other departments but not cross-referenced with African American world studies as partial fulfillment of the focus area requirement.

Students who use an advanced seminar to meet the advanced seminar and research participation requirement (see below) may count the seminar toward the focus area requirement.

**LANGUAGE REQUIREMENT**

The language requirement for the African American world studies major is the same as that of the College of Liberal Arts and Sciences General Education Program. See the College of Liberal Arts and Sciences web site.

**RESEARCH PREPARATION OR ADVANCED SEMINAR**

Students must complete either a course numbered 100 or above that includes some instruction in interdisciplinary research methods, or an advanced seminar.

The department maintains lists of courses satisfying the research preparation requirement, all of which require students to write a formal research paper.

While an advanced seminar is not required of all majors, students who take an advanced seminar may use the seminar to satisfy the research preparation requirement. Students who enroll in an advanced seminar are required to take five courses in their focus interest area; the advanced seminar counts as the sixth course. Only courses offered by the Department of African American World Studies may be used as advanced seminars.

### Four-Year Graduation Plan

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

- Before the third semester begins: at least one-quarter of the semester hours required for graduation
- Before the fifth semester begins: at least two courses in the major, including 129:060 and 129:061, and at least one-half of the semester hours required for graduation
- Before the seventh semester begins: four more courses in the major (for a total of six) and at least three-quarters of the semester hours required for graduation
- Before the eighth semester begins: at least eight courses in the major
- During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

**Honors**

The African American world studies honors program offers students the opportunity to pursue special interests in individual, in-depth research. Honors candidates in African American world studies must be members of the University Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information). Honors students complete 36 s.h. of course work, including all of the required course work for the major and up to 6 s.h. of honors course work.

Under the guidance of the undergraduate honors adviser, the honors candidate defines a research project using primary sources. Project proposals are made by the end of the candidate's junior year. Each candidate completes a project under the guidance of a supervising faculty member and may register for up to 6 s.h. in 129:095 Honors Project. Results are presented in a senior essay to a committee of three faculty members, including the supervising faculty member, the honors adviser, and a third faculty member of the student's choice. When the honors adviser is the supervising faculty member, the candidate may select second and third faculty members. The candidate's committee may choose to hear an oral defense of the final project, usually in the 12th week of the student's last semester.

**Minor**

African American world studies offers an undergraduate minor in African American studies. The requirements conform to the general requirements for minors in the College of Liberal Arts and Sciences. In consultation with their advisers, students select five courses (15 s.h.) in African American world studies courses. Four of these courses (12 s.h.) must be numbered 100 or above and must be taken at The University of Iowa. Students must earn a g.p.a. of at least 2.00 in all courses in the minor. Courses numbered 100 and above may be selected from all 129-prefix courses.

Students who wish to pursue a minor in African American studies should consult with an adviser in African American world studies as early as possible. It is recommended that they select an introductory course from the following: 129:008, 129:060, 129:061, 129:065. Advisers also recommend that they choose 129:116 or 129:117, and 129:189 as two of their upper-level courses.

**Graduate Programs**

### Master of Arts

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

### Curriculum Requirements

The M.A. requires 34 s.h. of postbaccalaureate study. Requirements include the following:

- 129:211 Introduction to Research in African American Culture 3 s.h.
- 129:312 Advanced Research in African American Culture (thesis/project) 4 s.h.
- Additional courses in African American world studies (at least this much credit) 12 s.h.
- Electives 15 s.h.

Students should choose electives in consultation with their advisers. All 15 s.h. of electives may be chosen from courses numbered above 100. Ideally, students should choose electives that share either a disciplinary or thematic connection. Students should consult an adviser in the program to determine which courses numbered above 100 are approved for an M.A.

Because the African American world studies advisory committee encourages doctoral study for those who have the ability, interest, and resources, it recommends that 6 of the 15 s.h. of electives in the Master of Arts program be used to explore doctoral education in disciplines outside African American world studies. Possible fields of study include American studies, anthropology, education, English, geography, history, and sociology. Students are encouraged to select at least one-half of the courses in the M.A. curriculum from those numbered above 200.

### Language/Tool Requirements

No foreign language or tool is required for the Master of Arts program in African American world studies, but students considering doctoral study in another field are encouraged to complete one language/tool requirement for that field while studying at the master's level.

### Thesis/Project Requirements

A thesis is not required but is an option for a Master of Arts. Students who elect to write a thesis must explore a topic of African American culture and/or experience in the thesis using research from more than one discipline. The maximum credit for a thesis is 4 s.h.

Students who do not prepare a thesis are required to develop, in consultation with an adviser, a project related to African American culture and/or experience. When completed, this project must be presented and defended before an appropriate class in African American studies. Credit for the thesis or project usually is earned through registration in 129:312 Advanced Research in African American Culture (4 s.h.).

### Admission

In addition to the general requirements of the Graduate College, unconditional graduate admission to African American world studies requires that students have an appropriate educational background in literature and the
social sciences, at least 6 s.h. of college credit in African or African American literature and/or history courses, and a g.p.a. of at least 2.70 in previous college courses in African American studies. Students may be asked to take, without credit toward the master's degree, courses to remedy deficiencies in their undergraduate preparation.

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

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

Concentration Leading to Ph.D. in American Studies

Generally, students seeking a Ph.D. in American studies with a concentration in African American studies are preparing to be teachers or research scholars at the college or university level.

Ordinarily, students seeking the African American studies concentration take a minimum of 36 s.h. of graduate study in African American world studies and write a dissertation on a topic in African American culture. Students interested in this concentration should consult both the chair of African American world studies and the chair of American studies for more information.

Cognate Areas, Special Fields

It is possible for students to take concentrations of African American studies courses as cognate areas or special fields in Ph.D. programs in history, English, and other disciplines. For details, consult an adviser in the Department of African American World Studies.

Related Courses

Although they are not offered by African American world studies, the following courses are recommended for interested students. For course descriptions, see the appropriate departmental sections of the Catalog.

ANTHROPOLOGY

113:151 Sociology of the Third World 3 s.h.

ART AND ART HISTORY

01H:310 Seminar: Problems in African Art 2-3 s.h.

EDUCATION

07B:104 Education in the Third World 2-3 s.h.
07B:130 Educational Sociology 2-3 s.h.
07B:154 Education, Race, and Ethnicity 2-3 s.h.
07U:133 Culturally Different in Diverse Settings 3 s.h.

HEALTH AND SPORT STUDIES

028:074 Inequality in Sport 3 s.h.

HISTORY

16A:061 American History 1492-1877 3 s.h.
16A:062 American History 1877-Recent 3 s.h.
16A:104 Civil War and Reconstruction 3 s.h.
16A:165 The Gilded Age in America 3 s.h.
16A:166 The Progressive Era in America 3 s.h.
16A:167 The New Era and the New Deal 1920-1940 3 s.h.
16A:168 The Contemporary U.S. 1940-Present 3 s.h.

POLITICAL SCIENCE

030:146 African Development 3 s.h.
030:150 Politics of Emerging Market Economies 3 s.h.

SOCIOLOGY

034:066 Social Inequality 3 s.h.

SOCIAL WORK

042:147 Discrimination, Oppression, and Diversity 3 s.h.

Cocurricular Activities

African American Theatre

Sponsored academically through the Department of Theatre Arts, African American Theatre I-II (049:190 and 049:191) give participants instruction and experience in theatrical productions of works by Black authors.

Afro-American Cultural Center

African American world studies encourages students to use facilities of the Afro-American Cultural Center. The center serves as a museum and library of educational and cultural artifacts and exhibits of Black culture, providing cultural enrichment for Black people of the Iowa City community and a cultural meeting place for Black students. It also attempts to provide a knowledge of Black culture that will promote interracial understanding among all members of the University community. See “Cultural Centers” in the Catalog.

Student Association

The African American Studies Student Association attempts to promote interest in Black culture by sponsoring programs on various topics. Any University of Iowa student interested in African American world studies is eligible to become a member.

Courses

For Undergraduates

129:008 Literatures of the African Peoples 3 s.h.
Works in English by authors of African descent from America, continental Africa, the Caribbean. GE: foreign civilization and culture or humanities. Prerequisite: 08G:001. Same as 08G:014.
129:015 Elementary Swahili I 4 s.h.
GE: foreign language. Same as 103:015.
129:016 Elementary Swahili II 4 s.h.
GE: foreign language. Same as 103:016.
129:123 Twentieth Century African American Religion: Civil Rights to Hip Hop 3 s.h.
Same as 036:126.

129:124 Black Culture and Experience 3 s.h.
Black culture and experience, nationally and internationally, as revealed through humanities and social sciences.

129:128 Racial Narrative and African American Performance 3 s.h.
Same as 010:128, 048:128.

129:135 Francophone Literature of the African Diaspora 3 s.h.
Same as 009:163.

129:137 History of Slavery in the U.S.A. 3 s.h.
Same as 016:147.

129:138 African and African American Interactions 3 s.h.
The slave trade, its legacy in Africa and the Americas; cultural, political interaction between Africans and African Americans; images of Africa in African American thought; Africanism, in African critics. Same as 16W:119.

129:139 African American Poetry 3 s.h.
Same as 008:139.

129:140 Topics in African American Studies arr.
Diferent topic each semester.

129:145 Elementary Swahili I for Graduates 3 s.h.
Same as 013:125.

129:146 Elementary Swahili II for Graduates 3 s.h.
Same as 013:126.

129:147 Intermediate Swahili I for Graduates 3 s.h.
Same as 013:127.

129:148 Intermediate Swahili II for Graduates 3 s.h.
Same as 013:128.

129:149 Advanced Swahili for Graduates 3 s.h.
Same as 013:129.

129:151 Race, Ethnicity, and International Relations 3 s.h.
Same as 113:181.

129:153 The Civil Rights Movement 3 s.h.
Same as 045:153.

129:157 Peoples and Cultures of Africa 3 s.h.
Ethnography of Africa, what African life is like and how it has been described and understood by outsiders.

129:159 Anthropology of African Art 3 s.h.
Theoretical perspectives and useful methods for studying African art and material culture in cultural and historical context; focus on synthesizing perspectives, methods of anthropology and art history, movies, slides of African art.

129:163 Precolonial African History 3 s.h.
Africa to 1880; introduction of oral tradition, other sources; political development; ecological change; slavery and the slave trade. Same as 16W:120.

129:164 African History since 1880 3 s.h.
Africa in colonial, post-colonial periods; economic and political structures of colonialism; social change, political life in the 20th century. Same as 16W:121.

129:165 Elementary Zulu I for Graduates 3 s.h.
Zulu language and culture through speaking, listening, reading, writing. Same as 103:165.

129:166 Elementary Zulu II for Graduates 3 s.h.
Continuation of 129:165. Prerequisite: 129:165. Same as 103:166.

129:167 Intermediate Zulu I for Graduates 3 s.h.
Continued skill development; review and expansion of basic grammar. Prerequisite: 129:166 or equivalent. Same as 103:167.

129:168 Intermediate Zulu II for Graduates 3 s.h.

129:175 African American Theatre I 3 s.h.
The role of world economic development in creating societies and cultures, thus shaping forms and counterforces of the world’s diverse peoples and creating distinct spaces. Prerequisite: consent of instructor.

129:176 Roots/Routes: Introduction to the Study of Diaspora 3 s.h.
The slave trade, its legacy in Africa and the Americas; cultural, political interaction between Africans and African Americans; images of Africa in African American thought; Africanism, in African critics. Same as 16W:119.

129:177 African American Theatre II 3 s.h.
Advanced version of 129:175, with focus on different plays; for theatre arts and African American world studies majors. Prerequisite: consent of instructor. Same as 049:191.

129:179 Independent Study in Black Culture arr.
Prerequisite: consent of instructor.

129:180 African and African American Studies arr.
Same as 008:139.

129:181 African American Autobiography 3 s.h.
Same as 008:137.

129:184 Black Metropolis: Twentieth Century 3 s.h.
Black popular culture and the African American urban experience. Same as 16A:184.

129:187 African American History 1865-Present 3 s.h.
Same as 16A:188.

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

129:191 African American Theatre II 3 s.h.
Advanced version of 129:175, with focus on different plays; for theatre arts and African American world studies majors. Prerequisite: consent of instructor. Same as 049:191.

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

For Graduate Students

129:205 Seminar: Slavery and Emancipation arr.
Same as 016:205.

129:211 Introduction to Research in African American Culture arr.
Methodologies, bibliographies, issues, resources significant to study of African American culture. Prerequisite: consent of instructor. Same as 045:210.

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

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

129:225 Seminar: Problems in African Art 2-3 s.h.

129:227 Three African Writers 3 s.h.
Same as 008:227.

129:231 Crossing Borders Seminar 3-4 s.h.

129:245 Readings: African American Histography 3 s.h.
Same as 016:245.

129:246 Seminar: African American History 3 s.h.
Same as 016:246.

129:250 Seminar: Interpreting Oral Histories 3 s.h.
Interpretations and methods applied by historians in varied world regions to forms of oral history, ranging from old oral traditions to contemporary autobiographical testimony. Same as 016:250.

129:277 Readings: African American Women's History 3 s.h.
Same as 016:287, 131:287.

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

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

American Studies

Chair: Lauren Rabinovitz
Professors: Susan Birrell (Health and Sport Studies/Women's Studies/American Studies), Richard P. Horwitz, Lauren Rabinovitz (American Studies/Cinema and Comparative Literature), John Raeburn (American Studies/English)
Professor emeritus: Albert E. Stone (American Studies/English)

Associate professors: Lafayette Adams (English/American Studies), Jane Desmond, Robert Latham (English/Sexuality Studies/American Studies), Kim Marra (Theatre Arts/American Studies), Laura Rigal (American Studies/English)

Assistant professor: Nicholas Yahlon

Undergraduate degree: B.A. in American Studies
Undergraduate nondegree program: minor in American Studies
Graduate degrees: M.A., Ph.D. in American Studies

Web site: http://www.uiowa.edu/~amstud

The Department of American Studies provides an interdisciplinary introduction to American culture, past and present. It helps students acquire a broad familiarity with the dynamics of cultural experience and explore aspects of life in the United States, such as popular and fine arts, institutions, values, gender and ethnic relations, artifacts, and the everyday life of a diverse citizen.

Undergraduate Program

Bachelor of Arts

The B.A. program in American studies stresses broad training in cultural analysis and communication. Although there is no explicit vocational training, the program provides preparation for careers in business, education, government, journalism, or social service; for advanced study in the humanities, the social sciences, theology, or business; or for professional study in law or medicine. Internships can be arranged, through the University's Career Center.

Required Courses

Requirements for the major in American studies have changed. Students who entered the college in summer 2004 or later, or who declare the major on or after the first day of fall semester 2004, must complete the new requirements, described below. Students who declared the major before the first day of fall semester 2004 may choose to complete the old requirements, but to graduate under the old requirements, they must complete all requirements and graduate by August 2008.

A distinctive feature of the American studies major is the opportunity to develop broad training in cultural analysis as well as emphasis of particular interests within the study of American culture. With the help of their American studies adviser, students may elect to pursue one of three focus areas within American studies, or they may create an individual plan of study. Each focus area allows students to group courses in American studies and other departments around a specific interdisciplinary theme, topic, or set of social issues. Focus areas are described below.

Shortly after declaring a major, a student should meet with his or her faculty adviser to explore the range of course work available and to begin shaping an individual plan of study. By the student's second term in the major, the student...
and adviser should have agreed upon a plan of study and focus area for completing the major requirements.

The major usually consists of 12 courses totaling 36 s.h. Courses in American studies must include 045:020 Sources for American Studies and 045:090 Seminar in American Cultural Studies. Requirements are as follows.

American studies requirement: six core courses, including 045:020 and 045:090 18 s.h.
American history: two courses 6 s.h.
Focus area of special interest: four courses in American studies and/or other departments 12 s.h.

At least 24 s.h. of course work toward the major must be earned at The University of Iowa.

American Studies Focus Areas
Students should consult regularly with the Department of American Studies about courses offered by American studies and other departments that apply toward each focus area. No more than two courses from a single department outside American studies may be applied toward any one focus area.

Diversity and Differences
Students who choose this focus seek to understand how social differentiation along the lines of gender, race, sexuality, social class, region, national origins, and age shape institutions and cultural practices in the United States. Emphasis is on the historic emergence of categories of social difference, and their interactions, especially as revealed in cultural practices and artifacts, geography and cityscapes, leisure, and popular expression.

American Arts, Literature, and Popular Culture
Students who choose this focus examine artistic creations to discover how they are shaped by cultural preconceptions, norms, and standards, and how in turn these expressive forms affect ongoing developments in cultural life. This focus emphasizes skills in the formal analysis of artistic artifacts, historical inquiry, and cultural contextualization.

American Society, Politics, and Everyday Life
Students who choose this focus consider the dynamics of social change, the emergence and fate of political movements, and the forms and practice of everyday life in America. The area encompasses the tradition of revolution in America, the effects of technological and economic change, and the roles of the family, workplace, and community from the colonial era to the digital age.

Individually Designed Focus Area
Individually designed focus areas may concentrate on an interdisciplinary topic, theme, group of people, or time period. Students who wish to design their own interdisciplinary focus area should consult with their American studies adviser for appropriate courses.

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

Before the third semester begins: at least one quarter of the semester hours required for graduation
Before the fifth semester begins: declaration of the major, discussion of a plan of study with an American Studies adviser, and at least one-half of the semester hours required for graduation
Before the seventh semester begins: at least six courses from the plan of study and at least three-quarters of the semester hours required for graduation
Before the eighth semester begins: at least nine courses from the plan of study
During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors
The American studies honors program offers students the opportunity to pursue special interests in individual, in-depth research. Honors candidates must be members of the University Honors Program, which requires that students maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information).

Under the guidance of the undergraduate honors adviser, the honors candidate defines a research project. Project proposals ideally are made by the end of the candidate’s junior year. Each candidate completes the project under the guidance of a supervising faculty member and may register for up to 6 s.h. in 045:095 Honors Project.

Results of the research project are presented in a senior essay to a committee of three faculty members, including the supervising faculty member, the honors adviser, and a third faculty member of the student’s choice. (When the honors adviser is the supervising faculty member, the candidate may select second and third faculty members.) The candidate’s committee may choose to hear an oral defense of the final project, usually in the 12th week of the student’s last semester.

Minor
Students interested in a minor in American studies should consult American studies faculty members. The minor requires a minimum of 15 s.h. of credit in American studies with a g.p.a. of at least 2.00. At least 12 of the 15 s.h. must be taken at The University of Iowa in advanced courses. All core courses numbered above 045:001 are considered advanced for the minor.

Graduate Programs

Master of Arts
The M.A. in American studies may be a terminal degree or a degree preliminary to the Ph.D. in American studies or another discipline. It usually includes 12 courses totaling 36 s.h. Requirements include the following.

045:200-045:201 Theory and Practice in American Studies I-II 6 s.h.
Two other core courses in American studies 6 s.h.

In addition, master's degree students select from five to eight additional courses relevant to a topic or period of cultural history; these courses may be grouped to address more than one topic, and they must be chosen from more than one discipline; they usually include at least two courses in American history and courses that center on American diversity.

Master's degree candidates must perform satisfactorily in 045:400 Masters Preparation (3 s.h.), which includes a comprehensive examination on course work and basic concepts.

The M.A. also may be taken with thesis, for which a student may receive up to 6 s.h. of credit. Students should consult the program chair for details.

A joint program leading to the M.A. in American studies and the J.D. from the College of Law provides a broad cultural context for the study and practice of law. Similar joint programs can be arranged in other professional fields, including journalism and social work.

Doctor of Philosophy

The Ph.D. program in American studies requires a minimum of 72 s.h. of course work, which includes a core of American studies courses in interdisciplinary methods and substantial course work in two major fields. Course requirements are as follows.

045:200-045:201 Theory and Practice in American Studies I-II (introductory seminars) 6 s.h.
Two or more additional core graduate courses in American Studies 6 s.h.
First major field (at least six courses) 18 s.h.
Second major field (at least six courses) 18 s.h.
Electives 6 s.h.
Dissertation (up to 18 s.h.)

Although American studies Ph.D. candidates are permitted considerable flexibility in planning a program, they must meet certain basic requirements.

The introductory seminars 045:200-045:201 Theory and Practice in American Studies I-II should be taken as early as possible, one during each of the student’s first two years in residence.

The additional American Studies graduate courses provide further models for interdisciplinary inquiry.

The two major fields may be defined to correspond with the student’s strongest intellectual interests, but they must be interdisciplinary in concept and multidisciplinary
Courses

Primarily for Undergraduates

Core Courses

045:001 American Values 3 s.h.
Representative texts, artifacts, cultural values in historical and contemporary context. GE: humanities.

045:005 American Issues 3 s.h.
Representative issues: radio and American culture; cultural history of the Civil War era; American history, literature, culture.

045:020 Sources for American Studies 3 s.h.
Variety of historic and contemporary sources, such as literature, law, photography, painting, film, TV, music, fashions, environments, events of everyday life.

045:029 First-Year Seminar 2 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities, field trips). Prerequisite: first- or second-semester standing.

045:030 Introduction to African American Culture 3 s.h.
GE: cultural diversity or humanities. Same as 129:061.

045:060 Sexuality and Popular Culture in the Postwar U.S. 3 s.h.
Same as 008:050, 154:060.

045:070 Popular Arts and Entertainment in the U.S. 1-3 s.h.
Television, popular fiction, games, humor, sport, or radio in social and cultural contexts.

045:074 Popular Music in American Culture 3 s.h.
History, development, and social context of American popular music in the 20th century. Same as 016:074.

045:075 American Popular Music 3 s.h.

045:085 America as a Foreign Country 3 s.h.
American features and circumstances that draw attention from non-Americans.

045:090 Seminar in American Cultural Studies 3 s.h.
Interdisciplinary perspectives on a single theme or period.

Independent Study

045:095 Honors Project arr.
Independent interdisciplinary research, writing.

045:100 Independent Study arr.
Prerequisite: consent of instructor.

For Undergraduate and Graduate Students

Core Courses

045:115 American Culture of the 1930s 3 s.h.
The Great Depression through historical records, literature, movies, music, art; emphasis on expression of American life and thought, social and cultural experience.

045:123 American Literature and History 3 s.h.
Examination of fictional histories (novels about history), their relationship to historical interpretation. Same as 008:123.

045:130 Dance in American Culture 3 s.h.
Social, popular, theatrical forms since the 1960s; emphasis on relationships among aesthetics, the body, cultural politics.

045:139 Race, Gender, Class, and the American Frontier 3 s.h.
Race, gender, and class shape cultural and cultural expansion on regional frontiers; how frontiers are represented in literature, art, film.

045:140 The Cultures of American Women 3 s.h.
Topics in women's experiences; emphasis on relationship between individual lives, broad social and cultural content. Same as 131:140.

045:145 Immigration and American Culture 3 s.h.
Immigrant and immigrant communities.

045:151 American Business Cultures 3 s.h.
Historical and contemporary records of business and corporate experiences as part of American life and thought, including representations of business in American novels, movies, history, autobiography; emphasis on questions of relationships between gender, ethnicity, class, and sexuality and corporate identities.

045:152 Fairs and Amusement Parks 3 s.h.
Nineteenth- and 20th-century international expositions, amusement parks, and theme parks as cultural events of U.S. self-definition.

045:153 The Civil Rights Movement 3 s.h.
History of the American civil rights movement. Same as 129:153.

045:155 Performing America Queerly 3 s.h.

045:156 Arts in America 3 s.h.
Relationship of the arts to their cultural context and to popular culture; focus on contemporary arts (e.g., music, dance, visual arts, theater, literature).

045:159 Representations of Revolution 3 s.h.
Cultural politics of the revolutionary tradition in American culture from 1776 to 1796.

045:161 Museums and the Politics of Representation 3 s.h.
Types of museums (natural history, art, ethnic, social history, economic) at national, regional, local levels.

045:165 The Culture of Nature 3 s.h.
How ideas of “the natural” and “the cultural” underpin belief, laws, and social practices; relationship between these two concepts; construction of notions of a natural world; idea of landscape and nature as a resource (e.g., appreciated, articulated, or enjoyed, focus on analysis of relationships to animals.

045:174 The American Vacation 3 s.h.
Weekends, holidays, vacations as bounded time-outs invested with cultural significance, history, ideology, and social practices; relationship between these two concepts; construction of notions of a natural world; idea of landscape and nature as a resource (e.g., appreciated, articulated, or enjoyed, focus on analysis of relationships to animals.

045:185 America in the World 3 s.h.
How U.S. activity influences lives worldwide.

045:193 American Photography 3 s.h.
Popular and art photographs as expressions of American life, thought.

045:194 American Film and Video 3 s.h.
Topics in history, interpretation, criticism of U.S. movies, television, video art.

045:196 American Everyday Culture and Life 3 s.h.

045:198 American Communities 3 s.h.
Studies of selected peoples and places in America; emphasis on books in anthropology, history, journalism, sociology and on documentary film.

045:199 Interviewing Americans 3 s.h.
Contemporary Americans through interviews, questioning and recording techniques, ethnographic writing. Same as 113:106.

Special Topics

045:110 Cultural Geographies of North America 3 s.h.
Same as 044:115.

045:150 Topics in American Cultural Studies 2-4 s.h.
Special topics in American history, literature, culture.

045:157 Gender on Stage 3 s.h.
How gendered bodies and roles are played on stage; popular, elite, experimental, traditional, mass media theatre, dance, music; performing gender in everyday life, theorizing spectatorship, politics of drag, feminist theatre. Same as 131:157.

045:163 Storytelling and Urban Engagement 3 s.h.
Same as 008:158, 102:158.
Primarily for Graduate Students

Core Courses

045:200 Theory and Practice of American Studies I 3 s.h.
- Theories, methods, cases in culture studies; emphasis on social science approaches. Prerequisite: graduate standing in American studies or consent of instructor.

045:201 Theory and Practice of American Studies II 3 s.h.
- Prerequisite: graduate standing in American studies or consent of instructor.

045:210 Introduction to Research in African American Culture 3 s.h.
- Same as 129:211.

045:220 Readings in American Culture 3 s.h.
- Major texts. Repeatable.

045:230 Seminar: Performing Arts in American Culture 3 s.h.
- American theater, dance, music, and performance.

045:258 Seminar: Technology and American Culture 3 s.h.

045:260 Seminar: History, Literature, and American Culture 3 s.h.
- Same as 088:456.

045:263 Historical Approaches to U.S. Culture 4 s.h.
- Developments in American cultural history, such as urbanization, growth of mass media, pluralism, assimilation. Repeatable.

045:293 Seminar in American Visual Culture 3 s.h.
- Visual expression, its relation to cultural history. Repeatable.

045:300 American Film and American Culture 3 s.h.
- Relationships between film and culture as developed in a particular approach, period, subject. Same as 048:300.

Special Topics

045:209 Readings on the American South: Gender and Race in American History 3 s.h.
- Same as 016:209.

045:299 American Studies Proseminar 1-2 s.h.
- Intensive reading on American cultural analysis topics; may include screenings, field trips, guest speakers, special events. Repeatable.

Independent Study

The following courses require consent of instructor:

045:320 Independent Study 3 s.h.

045:350 Material Culture Internship 0-5 s.h.
- Independent work in the field or in a field school, curating or interpreting material culture.

045:400 Masters Preparation 0-3 s.h.
- Writing for M.A. exam. Prerequisites: candidate for M.A. in American Studies without thesis and consent of instructor.

045:450 M.A. Thesis 0-5 s.h.

045:500 American Studies Position Paper 3 s.h.
- Writing for the Ph.D. comprehensive exam.

045:600 Ph.D. Thesis 3 s.h.
- Repeatable.

ANTHROPOLOGY

Chair: Michael Chibnik
Professors: Florence E. Babb (Anthropology/Women’s Studies), Thomas H. Charlton, Michael Chibnik, Russell Cochoy (Anthropology/Pediatric Dentistry), Virginia Dominguez, Melanie Dresher (Nursing/Anthropology), Ellen Lewin (Women’s Studies/Anthropology), Mac Marshall (Anthropology/Community and Behavioral Health), Toni Tripp Reimer (Nursing/Anthropology)

Associate professors: Rudolf Colloredo-Mansfeld, James Enloe, Robert Francis, Laura Graham, Katina Lillios, Douglas Midgett, Scott Schnell, Glenn Stroey (Classics/Anthropology)

Associate professor emeritus: Marshall B. McKusick
Adjunct associate professors: Kevin Kelly, Alfteta Monagan, Rachelle Saltzman

Assistant professors: Nanette Barkey (Anthropology/Community and Behavioral Health), William Graves, Adi M. Hastings, Meena R. Khandelwal (Women’s Studies/Anthropology), Erica Prussing (Anthropology/Community and Behavioral Health)

Adjunct assistant professors: John Deenbuk, Brigitte French, Karen Haisett, Velana Huntington, Roy Larich, Stephen C. Lensink, Maureen McCue, Elizabeth Prime Pauls

Adjunct instructor: Shirley J. Schermer

Undergraduate degrees: B.A., B.S. in Anthropology
Undergraduate nondegree program: minor in Anthropology
Graduate degrees: M.A., Ph.D. in Anthropology
Web site: http://www.uiowa.edu/~anthro

Anthropology is the comparative study of peoples and cultures past and present. The discipline’s four major subfields—cultural anthropology, biological anthropology, linguistic anthropology, and archaeology—have important connections to other social sciences, physical and biological sciences, and to the arts and humanities.

Anthropology provides a framework for understanding the relation of human beings to their natural environment and to the social and cultural worlds they create and inhabit. The field provides insight into biological and sociocultural evolution and includes a focus on economic, social, and political organizations, symbolic systems, and social systems. Comparative studies of these and other aspects of past and present cultures yield information on regularities and differences.

Undergraduate Program

The Department of Anthropology offers the Bachelor of Arts and the Bachelor of Science. Either program is appropriate preparation for advanced training or careers in anthropology, allied fields, and professional programs. Students who complete an anthropology major gain special understanding of human relations and expertise for jobs involving international or cross-cultural work, cultural resource management, and social and ethnic diversity in the United States.

Upon graduation, anthropology majors embark on careers in government work, international affairs, gerontology, urban and regional planning, social work, marketing, museum work, and education. Others pursue graduate study in law, business, and health care as well as anthropology and related social science disciplines. Some are employed in cultural resource management.

Bachelor of Arts students must complete 33 s.h. in the major; at least 15 s.h. must be earned at The University of Iowa.

Bachelor of Science students must complete 42 s.h. (not including the hours for the minor); at least 15 s.h. must be earned at The University of Iowa.

Common Requirements

All anthropology majors must complete the following courses.

113:003 Introduction to the Study of Culture and Society 3-4 s.h.
113:010 Anthropology and Contemporary World Problems 3 s.h.
113:012 Introduction to Prehistory 3 s.h.
113:013 Human Origins 3 s.h.
113:014 Language, Culture, and Communication 3 s.h.
113:050 Issues in Anthropology 3 s.h.

One 100-level course in archaeology (areal or topical) or biological anthropology

One 100-level course in sociocultural or linguistic anthropology

One 100-level course in area studies

Three 100-level electives

Anthropology electives offer many choices, including courses dealing with language and culture, medical anthropology, religious activity, ritual, gender, biological anthropology, human osteology, identity, expressive culture (art, verbal arts, literature, music, and dance), human prehistory, human evolution, human evolutionary anatomy, environment and culture, and urban anthropology. Department faculty members offer area studies courses on Latin America, Oceania, Japan, the Caribbean, the Middle East, South Asia, and Native North America.

Additional Bachelor of Arts Requirements

Students pursuing the B.A. are strongly encouraged to participate in archaeological field and laboratory research, independent studies in sociocultural anthropology, or linguistic anthropology research.

Additional Bachelor of Science Requirements

Bachelor of Science students must fulfill requirements in the following areas.

A quantitative, mathematical, or formal reasoning tool: at least two courses, minimum 6 s.h.

Directed laboratory or field research: at least one course, 3 s.h. (credit may be applied to honors major when appropriate)

Allied topical course work (related minor)

QUANTITATIVE, MATHEMATICAL, OR FORMAL REASONING TOOL

Students must complete a minimum of 6 s.h. beyond the courses used to complete the General Education Program’s quantitative or formal reasoning component. Students select specific courses or course sequences in consultation with their advisors.
DIRECTED LABORATORY OR FIELD RESEARCH

Students complete an approved directed research requirement (minimum of 3 s.h.) consisting of one of the following:

Laboratory research: a laboratory practicum in anthropology research labs or independent, faculty-guided, laboratory research, including use of the collections of the Office of the State Archaeologist.

Field research project: faculty-advised projects involving the collection of primary data in a fieldwork setting.

A University of Iowa field school program or approved equivalent (current field schools include Plum Grove Historical Archaeology and the University of Iowa Southwest Archaeology Field School).

An approved internship: typical approved internships may be in cultural resource management firms, museums, public health research or education projects. To receive research credit for an internship, students must make a final report to faculty adviser, summarizing the work accomplished or presenting materials that document the nature of the work.

ALLIED TOPICAL COURSE WORK

Students complete a topical specialization, consisting of at least one minor in one of the following allied fields: biological sciences, chemistry, computer science, economics, exercise science, geography, geosience, global health studies, health and sport studies, linguistics, mathematics, psychology, science education, and statistics and actuarial science. Minors (or at least five courses) in other fields, chosen in consultation with the student’s adviser, may be applied toward this requirement.

Advising

Students who declare anthropology as their major when admitted to the College of Liberal Arts and Sciences are advised at the Academic Advising Center until they have earned 28 s.h. Students who have earned more than 28 s.h. are advised in the department. Students are assigned an adviser based on faculty adviser loads and student interests.

Transfer Students

Students pursuing the Bachelor of Arts or the Bachelor of Science must earn at least 15 s.h. in anthropology at The University of Iowa. Students may apply semester hours earned at approved field schools offered by other institutions toward the B.S. in anthropology.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s Four-Year Graduation Plan.

Bachelor of Arts

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

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

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

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

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

Bachelor of Science

Before the third semester begins: at least one anthropology course or other course in the major, and one-quarter of the semester hours required for graduation

Before the fifth semester begins: at least four anthropology courses or other courses in the major, one course in the minor area, one course for the quantitative or formal reasoning tool requirement, and one-half of the semester hours required for graduation

Before the seventh semester begins: at least seven courses in the major, three courses in the minor area, the second quantitative or formal reasoning tool course, and at least three-quarters of the hours required for graduation

Before the eighth semester begins: at least nine courses in the major, including the directed research requirement and four courses in the minor area

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

Honors

In addition to the regular requirements for a major in anthropology, honors students pursuing either the Bachelor of Arts or the Bachelor of Science conduct an independent research project, culminating in a 30-50 page thesis. The project includes completion of 113:186 Honors Research Seminar, offered only fall semesters, and registration for 113:176 Honors Research, typically the next semester. They also must take one of their anthropology courses at the graduate level. To graduate with honors, students must have a g.p.a. of at least 3.50 in anthropology and be a member of the University Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information). For more information about honors in anthropology, contact the department’s honors adviser.

Students pursuing the Bachelor of Science can count their directed research project or laboratory practicum towards the hours needed to complete honors requirements. However, meeting the research requirement by itself does not meet the honors requirement. Students must work with their honors thesis adviser to structure their research so that it meets the added qualifications of honors work.

National Honor Society

The department sponsors a chapter of Lambda Alpha National Collegiate Honors Society. Students who have a cumulative g.p.a. of 3.20 or higher are eligible to enroll.

Minor

To minor in anthropology, students must complete 15 s.h. in anthropology with a g.p.a. of at least 2.00. At least 12 s.h. must be taken at The University of Iowa in courses numbered 113:100 and above.

Graduate Programs

The graduate program emphasizes continuity from the Master of Arts to the Doctor of Philosophy. Before admission to the Ph.D. program, students complete the requirements for an M.A. Entering graduate students are not required to have an undergraduate degree in anthropology. Applicants who hold an M.A. in anthropology from other institutions may apply directly for admission to the Ph.D. program.

All students admitted to graduate study in anthropology are admitted to the Ph.D. program, unless they request admission only as M.A. students.

Master of Arts

The M.A. in anthropology is normally awarded to students after two years in the graduate program. The degree requires 30-36 s.h., depending on the student’s previous anthropological training. No more than 9 s.h. earned in courses outside anthropology may be applied toward the M.A. in anthropology.

There are two options for the master’s program: general anthropology and feminist anthropology. Feminist anthropology has more specific requirements than general anthropology.

General Anthropology

Students must complete core seminars in at least three of the four subfields, for a total of 9 s.h.

The four core seminars are as follows.

113:240 Seminar: Sociocultural Anthropology

113:268 Seminar: Archaeological Theory and Method

113:271 Seminar: Linguistic Anthropology

113:285 Seminar: Biological Anthropology

In addition, all students are required to take 113:210 Anthropolitical Data Analysis or another course in statistics within the first three years of the graduate program. Students are
encouraged to take this course during their master's program (first two years of graduate study).

**Electives**

In consultation with their adviser and committee members, students must select additional course work to complete the remaining semester hours required for the M.A. in anthropology. Elective hours may include courses in other disciplines, directed study, or up to 6 s.h. of thesis credit (if applicable).

**Feminist Anthropology**

Students in the M.A. program in feminist anthropology must take three of the required core seminars for the general anthropology program; 113:290 Feminist Perspectives on Biology and Culture may be substituted for 113:285 Seminar: Biological Anthropology.

In addition, students must take the following core seminars:

113:220 Seminar: Feminist Anthropology 3 s.h.
113:273 Seminar: Language and Gender 3 s.h.
113:290 Feminist Perspectives on Biology and Culture 3 s.h.

All students must take 113:210 Anthropological Data Analysis or another statistics course within the first three years of graduate study, preferably during the first two years.

**Electives**

Students must select two of these:

113:105 Motherhood and Reproduction 3 s.h.
113:141 History of Feminist Anthropology 3 s.h.
113:154 Anthropologies and Sexualities 3 s.h.
113:175 Gender and Development Studies 3 s.h.
113:182 Women, Health, and Healing 3 s.h.
113:221 Seminar: Feminist Ethnography 3 s.h.
113:223 Feminist Medical Anthropology 3 s.h.

In consultation with their adviser and committee members, students select additional course work to complete the remaining semester hours required for the M.A. Elective credit may include course work in other disciplines, directed study, or up to 6 s.h. of thesis credit (if applicable).

**Doctor of Philosophy**

The Ph.D. represents a balance between general anthropological research, write a dissertation, and defend it in order to complete the degree.

**Required Course Work**

The doctorate requires a minimum of 72 s.h. beyond the B.A.

Students must take all lecture courses and seminars that are relevant to the areas they intend to cover in their position papers. A maximum of 18 s.h. earned in non-anthropology courses may be counted toward the 72 s.h. required for the Ph.D., including the maximum 9 s.h. that can be counted toward the master's degree.

Students must not rely heavily upon independent study courses.

Students must take at least one theory course beyond the course they took to fulfill the master's requirements in their specialization subfield. This course should be chosen from one of the following lists.

**Sociocultural Anthropology**

113:201 Seminar: Anthropological Theory 3 s.h.
113:205 Reading French Theorists 3 s.h.
113:220 Seminar: Feminist Anthropology 3 s.h.
113:240 Seminar: Sociocultural Anthropology 3 s.h.
113:244 Seminar: Semiotics 3 s.h.
113:250 Theoretical Approaches to Ritual 3 s.h.

**Linguistic Anthropology**

113:123 Language and Nationalism 3 s.h.
113:244 Seminar: Semiotics 3 s.h.
113:271 Seminar: Linguistic Anthropology 3 s.h.
113:273 Seminar: Language and Gender 3 s.h.

**Archaeology**

113:164 Comparative Prehistory 3 s.h.
113:178 Hunter-Gatherer Ethnoarchaeology 3 s.h.
113:268 Seminar: Archaeological Theory and Method 3 s.h.

**Biological Anthropology**

113:165 Human Variation 3 s.h.
113:169 Human Evolutionary Anatomy 3 s.h.
113:170 Primates Evolutionary Biology 3 s.h.
113:187 Human Evolution 3 s.h.
113:188 Primate Behavior and Ecology 3 s.h.
113:288 Seminar: Paleoanthropology 3 s.h.

**Foreign Language**

All doctoral candidates must demonstrate reading and/or speaking knowledge of one foreign language. They must meet this requirement before beginning dissertation research.

**The Comprehensive Process**

The process of working toward a Ph.D. consists of several phases after the completion of work toward the master's degree. Students work closely with their adviser and committees at all stages.

Immediately after completing M.A. work, students begin consultations with their committee and start to compile an annotated bibliography of works relevant to their future research program. The annotated bibliography is a working document for the student's use in the Ph.D. program; it is not a formal requirement and does not require formal review.

According to their individual needs and in consultation with their committee, students may invert the order of preparing a research proposal for prospectus defense and writing position papers (the doctoral comprehensive examination) discussed below.

**Research Proposal and Prospectus Defense**

Working closely with the committee, the student drafts research proposals for the program of dissertation research after completing 45 s.h. of graduate study, but not later than the sixth semester.

After completing at least 54 s.h. of graduate study, but not later than the seventh semester in the program, the student submits the research proposals to funding agencies, prepares a formal dissertation prospectus, and defends it before his or her Ph.D. committee before the end of the semester. The defense is also open to other students and faculty. A copy of the student's dissertation prospectus must be made available in the department office one week before the defense.

**Position Papers**

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

The papers should demonstrate analysis, evaluation, synthesis, and control of a body of information (knowledge and comprehension). They should critique a major problem or debate (application and analysis), and they should develop a position on an issue and provide an explanation or theoretical justification for the position (evaluation and synthesis).

Successful completion of this process advances the student to candidacy for the Ph.D. If this process has not been completed by the end of the fifth year of graduate registration (third year in the Ph.D. program), the student is placed on probation.

**Dissertation**

All doctoral candidates are required to carry out original anthropological research. Students typically conduct dissertation research after defending the research prospectus and writing the position papers. Dissertations are usually based on fieldwork. Some are based on data from archival collections, laboratory projects, collections, or other source materials.

**Archaeological Field Research**

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

**Admission**

Applicants for admission to the graduate program in anthropology are considered regardless of their previous field of training. Students without previous training in anthropology are expected to perform additional work necessary to achieve competence expected for their degree objective.

Students normally are admitted directly to the Ph.D. program. For students without a master's degree in anthropology, the first two years of the Ph.D. program are devoted to fulfilling the requirements of the M.A. degree. After those requirements are completed, the student's committee makes a recommendation to the faculty whether the student should continue in the Ph.D. program.

Students with an M.A. degree in anthropology from another institution may proceed directly into a Ph.D. program organized around their special research interests. If they lack any of the requirements of Iowa's graduate program in anthropology, they will be informed of those requirements in their letter of admission.

Applicants for admission to the graduate program must meet the general admission requirements of the Graduate College (see the Manual of Rules and Regulations of the Graduate College in the Graduate College section of the Catalogi) and are required to submit the following:

- a completed University application form;
- transcripts of all previous undergraduate and graduate work;
- three letters of recommendation from individuals competent to judge the applicant's potential for graduate training;
- Graduate Record Examination (GRE) scores, and TOEFL (Test of English as a Foreign Language) scores for non-English-speaking foreign students whose previous university work was not conducted in English; and
- at least one written example of previous work (for example, a term paper).

Applicants with an M.A. from another university must submit a copy of their master's thesis; applicants who earned an M.A. without thesis or whose thesis is not yet complete should submit written copies of three papers completed in graduate school.

Applicants should have a g.p.a. of at least 3.00. Applicants with lower grade-point averages may be admitted on conditional status if they show potential for graduate work. Applicants admitted on conditional status receive a letter stating courses they must take and grades they must earn in order to remove their conditional status. The Graduate College requires students to meet the conditions set forth in the letter of admission by the end of the second semester, in order to continue in the program.

**Financial Support**

The department offers financial assistance, usually in the form of teaching and research assistantships, to the majority of graduate students in good standing for five years. Students making satisfactory and timely progress through the graduate program are in good standing. Eligibility for financial aid is reduced after two years in the master's portion of the graduate program, after two years in the doctoral portion of the graduate program, or after one year of postdoctoral fieldwork or research enrollment. The department typically provides a one-year tuition scholarship to doctoral students conducting research for the dissertation. The amount and types of aid depend on departmental needs. The department awards financial aid to most entering graduate students every year.

Notification in writing of a provisional financial aid award is given to the student prior to the semester or summer session for which the award has been granted. As financial aid awards are made before the end of the semester, each award is contingent upon satisfactory completion of that semester's work by the awardee. Financial aid normally is given only to full-time students.

**Facilities**

The Department of Anthropology has access to the Iowa Archaeological Collections through the Office of the State Archaeologist and maintains its own archaeological collections (midwestern prehistoric and historical and comparative faunal material).

The department maintains a documented human osteology teaching collection amassed by the University of Iowa Carver College of Medicine. It also holds a substantial documented human osteology research collection originally from Stanford University's medical school that is maintained jointly with the Office of the State Archaeologist.

Individual faculty members maintain field laboratories and conduct research outside the United States, maintaining ties with research institutions in foreign countries, including the Teotihuacan Archaeological Research Facility, in Mexico; the Laboratoire d’Ethnologie Préhistorique at Pincevent; the Centre de Recherches Archéologiques at Verberie, in France; the Institute of Technology Bandung (ITB), in Indonesia; and the Gemeente Nijmegen, Bureau Archeologie, Nijmegen, the Netherlands.

The department also has well-equipped laboratories for the study of archaeology, biological anthropology, and a state-of-the-art multimedia linguistic anthropology lab.

The University is a charter member of the Human Relations Area Files (HRAF), an extensively annotated set of source materials on the peoples of the world—their environments, behavioral patterns, social lives, and cultures. Through HRAF and other library resources, anthropology students have access to source materials on more than 400 different cultures.

The University's exchange programs for Iowa students provide opportunities and some scholarships for study abroad.

**Courses**

**For Undergraduates**

**113:003 Introduction to the Study of Culture and Society** 3-4 s.h.
Comparative study of culture, social organization. GE: social sciences.

**113:010 Anthropology and Contemporary World Problems** 3 s.h.
Selected world problems from an anthropological perspective; current dilemmas and those faced by diverse human groups in recent times and distant past. GE: social sciences.

**113:012 Introduction to Prehistory** 3 s.h.
Data, theories on evolution of human cultures from end of Pleistocene to emergence of complex societies; emphasis on prehistoric cultural information from world areas from which relatively complete sequences are available. GE: historical perspectives.

**113:013 Human Origins** 3 s.h.
Processes, products of human evolution from perspectives of heredity and genetics, evolutionary theory; human biological characteristics, fossil record, artificial evidence, biocultural behaviors. GE: natural sciences.

**113:014 Language, Culture, and Communication** 3 s.h.
Human language in context of animal communication; development, acquisition of language; biological basis, language as a linguistic system in cultural social context. GE: social sciences.
Advanced Courses

General Anthropology

113:103 Introduction to Museology 3 s.h.

113:147 Special Topics in Anthropology 2-3 s.h.
Prerequisite: consent of instructor. Same as 033:178, 130:176, 165:199.

113:148 Special Topics in Anthropology 3 s.h.
See 113:147.

113:149 Special Topics in Anthropology 2-3 s.h.
See 113:147.

113:151 Sociology of the Third World 3 s.h.
Economic development as a sociological problem; social institutions, social organization of underdeveloped areas; social, economic development programs; social change, consequences of industrialization and urbanization in underdeveloped areas. Prerequisite: 034:001 or 113:003. Same as 034:151.

113:200 Research Design and Proposal Writing 3 s.h.
Anthropological research design; preparation of proposals for fieldwork or laboratory analysis. Prerequisite: graduate standing or consent of instructor.

113:210 Anthropological Data Analysis 3 s.h.
Quantitative procedures for analyzing field data, library materials; elementary statistics, introduction to computers.

113:235 Graduate Teaching Proseminar 1 s.h.
Graduate student teaching skills: developing course guidelines, leading discussion, grading, review sessions, dealing with problem students and complaints; development of syllabi and teaching portfolios; mentoring of less experienced teaching assistants. Repeatable. Prerequisite: graduate standing.

Area Studies

The following are some courses to fulfill the area studies requirement:

113:30 Latin America: Cultural Politics 3 s.h.
Currents in Latin American politics and culture, including identity-based movements, oppositional developments; analysis of indigenous, environmental, women, and gay cultures and politics. Prerequisite: junior standing or higher.

113:31 Latin American Economy and Society 3 s.h.
Development, present structure of Latin American economy and society; emphasis on rural regions in context of national development; focus on area as a whole. GE: foreign civilization and culture.

113:32 Latin American Studies Seminar 3 s.h.
Interdisciplinary (anthropology, history, political science, Spanish, Portuguese, etc.). Same as 035:179, 038:176, 048:153, 136:176.

113:34 Diaspora Cultures 3 s.h.
General theories of diaspora, which have expanded from the Jewish experience to explain African and Asian diasporas; theories in context of diaspora Indian populations and their relationship to the homeland. Prerequisite: 113:003 or consent of instructor.

113:251 Constructing America 3 s.h.
How America has been configured as a focus of anthropological concern; the changing meaning of American culture as seen through ethnograms, recent ethnographic works.

113:259 Field Research in Ethnography 3 s.h.
Prerequisite: 113:107. Same as 131:107.

Sociocultural Anthropology

113:105 Motherhood and Reproduction 3 s.h.
Motherhood and reproduction in feminist theory and scholarship viewed through various disciplines. Same as 131:142.

113:108 Health and Cultural Diversity 3 s.h.
Cultural perspectives on health, illness. Prerequisite: 113:003 or consent of instructor. Same as 096:172, 152:108.

113:109 Literature and Anthropology 3 s.h.
Topics vary. Same as 008:151, 048:151.

113:111 Drugs: Medical Anthropological Perspectives 3 s.h.
Survey of worldwide variety in human drug use, patterns of consumption, associated cultural beliefs, physiological and psychological effects, beneficial and detrimental health consequences; biomedical, modern, and illegal drugs. Prerequisite: 113:003 or 113:010 or consent of instructor.

113:115 Race, Racism, and Antiracism in the U.S. 3 s.h.
U.S. concepts of race and racism in historical comparative perspective, visual, legal, media, political, cultural, and intellectual areas in which ideas about race are manifested, produced, consumed, contested. Prerequisite: sophomore standing or higher.

113:116 Self and Others 3 s.h.
Comparative, theoretical discussions of social identity; principles of social differentiation, categorization, sociopolitical histories, consequences, contextualization of U.S. notions of ethnicity, race, nation, class, gender, culture. Prerequisite: Junior standing or higher of consent of instructor.

113:119 Urban Anthropology 3 s.h.
Cross-cultural approach; emphasis on urbanizing processes, migration and adaptation, aspects of class and ethnicity in urban settings, urban economic relations. GE: sciences.

113:122 Artisans and Global Culture 3 s.h.
Significance of skilled manual work in global culture; techniques, economies, history of modern handicrafts, politics of indigenous artisans. Prerequisite: 113:003 or consent of instructor.

113:124 Colonialism and Culture 3 s.h.
Effects of the colonial encounter on the European colonizers and colonized populations: cultural effects and colonial modernity through varied thematic, sociocultural, and geographic contexts. Prerequisite: 113:003 or 113:010 or consent of instructor.

113:133 The Anthropology of Women's Health 3 s.h.
How female gender intersects with culture, environment, and political economy to shape health and illness; reproductive health, violence, drug use, cancer; readings in anthropology, public health. Prerequisite: 113:003 or 113:010 or consent of instructor.

113:135 Psychological Anthropology 3 s.h.
Cultural diversity in construction of self, mind, and emotion; religious experience, altered states of consciousness, behavioral disorders. Prerequisite: 113:003 or 113:010.

113:136 Applied Anthropology 3 s.h.
Practical health, environmental, and social problems viewed through an anthropological perspective; recent experimental approaches are used to recognize and address applied problems. Same as 175:136.

113:137 Anthropology of Tourism 3 s.h.
Anthropology of leisure tourism, history of tourism, seasonal rituals and pilgrimage, cultural or ethnic tourism, production and trade in ethnic arts, tourism as economic development.

113:138 Anthropology and Education 3 s.h.
Sociocultural nature of education and impact of linguistic and cultural diversity on education; political, social, linguistic issues of educational practices and policies today.

113:139 Religion and Environmental Ethics 3 s.h.
How humans conceptualize the biophysical environment through religious beliefs and practices; how images of the environment influence people's activities, how they are used by grassroots environmental movements. Prerequisite: junior or senior standing or consent of instructor. Same as 032:130, 033:139.

113:140 City and Society 3 s.h.
Current issues in cross-cultural perspective, emphasis on Third World cities in the era of globalization, with attention to gender, race, class, citizenship.

113:141 History of Feminist Anthropology 3 s.h.
Development and evolution of feminist critiques in cultural anthropology; readings from early studies by women ethnographers, classic writings that sought to give women cross-cultural visibility; recent experimental trends. Prerequisite: 113:003 or 131:010. Same as 131:141.
113:142 Anthropology of Religion 3 s.h.
Approaches, religious studies, animism, witchcraft, cultic mythology; place of religion in social and cultural change. Same as 302:165.

113:143 Environment and Culture 3 s.h.
Individual and group responses to scarcity of natural resources such as land, water, food. Prerequisite: 113:003 or 113:030 or graduate standing or consent of instructor.

113:144 Culture and Consumption 3 s.h.
How social world is made through goods and commodities; gift giving, prestige economy, commodification, objects and ideology; politics of consumption; role of materialism in cultural change; cases from prehistory to post-mid Los Angeles.

113:145 Economic Anthropology of the Third World 3 s.h.
Economic, cultural, and political theories of poverty, economics and adaptive practices of rural peoples in context of world economic system; ethnographic case studies of material practices of class, gender, and nation; focuses on cultures related to economy.

113:146 Anthropology of Death 3 s.h.
How anthropologists and archaeologists study death, dying, mortuary rituals, and notions of the afterlife in contemporary North America and in different places and times. Prerequisite: 113.003 or 113:012 or graduate standing or consent of instructor.

113:153 Cultural Politics 3 s.h.
Implicit and explicit manifestations of power in the arts, popular culture, institutions of learning, sites of historical preservation; illustrations, analyses drawn from variety of countries in addition to contemporary United States. Prerequisite: sophomore standing or higher.

113:154 Anthropologies and Sexualities 3 s.h.
Anthropological approaches to cultural construction of sexuality in societies; theory and research on sexuality in social, political, and economic contexts. Prerequisite: junior standing or higher. Same as 131:154.

113:155 Race and Ethnic Relations 3 s.h.
Multidisciplinary study of intergroup relations; emphasis on historical, sociological, political issues in study of American minority groups. Prerequisite: 034:001 or 113:003 or consent of instructor.

113:156 Sexuality and Culture 3 s.h.
How organization and meaning of sexuality are shaped by kinship, subsistence activities, and inequalities based on race, class, gender, and nation; focuses on cultures outside the United States. Prerequisite: 113:003 or 113:010. Same as 131:156.

113:157 Alcohol and Culture 3 s.h.
Cross-cultural view of use, abuse; focus on common patterns of drinking. Social variability in drunken comportment; implications of studies of drinking in other cultures; drinking behavior in American society. Prerequisite: 113:003 or consent of instructor.

113:175 Gender and Development Studies 3 s.h.
Consequences of economic and political development for women of Latin America, Asia, current theoretical perspectives, including political economy, feminist and postmodern approaches. Prerequisite: junior standing or higher or consent of instructor. Same as 131:175.

113:180 Women Writing Culture 3 s.h.
Feminist ethnography and other kinds of feminist narrative that write culture; pushing the boundaries of how anthropologists define ethnography. Prerequisite: 113:003 or 113:010. Same as 131:180.

113:181 Race, Ethnicity, and International Relations 3 s.h.
Racial and ethnic conflict, particularly as threat to regional, world balances; efforts to alleviate conflict. Same as 129:151.

113:182 Women, Health, and Healing 3 s.h.
Experiences of women as recipients and providers of health care; intersection of race, class, cultural variation on women’s health; reproductive and nonreproductive health concerns. Same as 131:182.

113:184 Anthropology and International Health 3 s.h.
Medical anthropology’s critical role in international health research and practice; political ecology of infectious disease; quest for culturally appropriate interventions. Same as 152:184, 172:131.

113:185 Medical Anthropology 3 s.h.
Major theoretical, methodological approaches; international health and development; biomedicine as a cultural system; ethnomedicine; anthropology and AIDS; human reproduction, epidemiology, ethnepidemiary. Prerequisite: 113:003 or 113:010 or consent of instructor. Same as 152:185.

113:201 Seminar: Anthropological Theory 3 s.h.
Contemporary theoretical issues in sociocultural anthropology.

113:202 Ethonographic Field Methods 3 s.h.
Basic data-gathering techniques for field research in sociocultural anthropology. Prerequisite: graduate standing in anthropology or consent of instructor.

113:205 Reading French Theorists 3 s.h.
Influential modern and contemporary French scholars and their anthropological, cultural studies adaptations; Derrida, Lévi-Strauss, Foucault, Bourdieu, DeCerteau. Prerequisite: graduate standing or consent of instructor.

113:208 Foundations of Ethnomusicology 3 s.h.
Ethnomusicology as a discipline of materials, humanistic, social science scholarship on expressive culture and artistic processes. Prerequisites: senior standing and consent of instructor. Same as 025:319.

113:220 Seminar: Feminist Anthropology 3 s.h.
Theory, methods, research, epistemology from a feminist perspective. Prerequisites: graduate standing and consent of instructor. Same as 131:220.

113:221 Seminar: Feminist Ethnography 3 s.h.
Feminist critiques of traditional ethnographies, informed by contemporary feminisms. Prerequisite: 113:220 or 131:220 or consent of instructor. Same as 131:245.

113:223 Feminist Medical Anthropology 3 s.h.
Directions feminist medical anthropological scholarship; focus on ethnographies that have become classics of the genre and on influential theoretical and applied work. Prerequisite: consent of instructor. Same as 131:223.

113:230 Crossing Borders Seminar: Introductory 3-4 s.h.

113:240 Seminar: Sociocultural Anthropology 3 s.h.
Social institutions in the world’s societies; problems in theory, method, interpretation. Prerequisite: graduate standing in anthropology.

113:247 Crossing Borders Seminar 3-4 s.h.

113:248 Crossing Borders Pro-Seminar 1 s.h.

113:260 Theoretical Approaches to Ritual 3 s.h.
Approaches to comparative study of ritual in religious and secular contexts. Prerequisite: graduate standing or consent of instructor.

113:261 Rhetorics of Ethnographies 3 s.h.
Rhetorical theory, analysis applied in a selection of ethnographic classics, more recent ethnographies; tropes, conventions of ethnographic writing in essays, oral presentations; fieldwork. Same as 008:266, 010:361.

113:275 Development Policy and Planning in the Third World 3 s.h.
Same as 078:275, 043:275, 042:275, 044:275, 102:275.

Archaeology

The following archaeology courses may be used to fulfill the area studies requirement: 113:150, 113:159, 113:163, 113:166, 113:167, 113:192, and 113:194. No single course may be used to fulfill both area studies and archaeology requirements.

113:150 Tribes and Chiefdoms of Ancient Europe 3 s.h.
Archaeology of Eastern Europe and ancient Iron Age; how ideas about Europe’s prehistoric past have been used for political purposes. Prerequisite: 113:012 or graduate standing or consent of instructor.

113:158 Animal Bones in Archaeology 3 s.h.
Use of faunal material in interpretation of archaeological remains, including skeletal anatomy, identification, taphonomy, terrestrial reconstruction, oral presentations; identification, taphonomy. Prerequisite: 113:012.

113:159 Southwestern Archaeology 3 s.h.
Archaeology of prehistoric hunter-gatherers interpreted on a global scale; emphasis on subsistence, mobility, social organization; archaeological record of prehistoric hunter-gatherers interpreted through study of modern societies. Prerequisite: graduate standing or consent of instructor.

113:187 Approaches to Geoarchaeology 3 s.h.
Geoarchaeology as a multidisciplinary framework for human paleoecology; natural processes that create the archaeological record; approaches to reconstructing landscapes of the past; site formation processes, taphonomy, sample collection, design, typology and seriation, subsistence-settlement reconstruction, cultural evolution. Prerequisite: 113:012.

113:190 Prehistoric People of the Ice Age 3 s.h.
Hominid occupation of Old World during Pliocene; hominid fossils, artifacts, settlement patterns, climatic reconstruction, evolutionary processes; survey and evaluation. Prerequisites: 113:012 or 113:168, or consent of instructor.

113:192 Greek Archaeology and Ethnology 3 s.h.
Archaeology and ethnology of the Greek world, from end of Bronze Age to late Roman Empire, sociocultural processes that influence development and persistence of Greek civilization. Prerequisite: 113:012 or 113:013 or consent of instructor. Same as 25E:118.

113:193 Special Topics in Archaeology 3 s.h.

113:194 Roman Archaeology 3 s.h.
Archaeology and ethnology of Roman civilization from Iron Age to eighth-century occupation of the Palestine Hill to the end of the Roman Empire in the west, A.D. 476. Prerequisite: 113:012 or 113:013 or consent of instructor. Same as 25E:119.

113:196 Advanced Field Research in Archaeology 3 s.h.
Repeatable. Same as 129:151. Same as 131:151. Same as 152:185.
Biological Anthropology

113:165 Human Variation 3 s.h.
Range and patterning of biological diversity in contemporary human populations; past and present attempts to organize and explain human genetic, morphological variation in light of recent data, theoretical frameworks.

113:169 Human Evolutionary Anatomy 3 s.h.
Interpretation of skeletal remains as the basis for reconstructing forms, adaptations, lifeways of prehistoric humans; body size, musculature, stature patterns, brain size, and sexual dimorphism. Prerequisite: 113:190 or consent of instructor.

113:170 Primate Evolutionary Biology 3 s.h.
Origin and diversification of the primate order through fossil evidence, morphology, systematics, and biomolecular studies emphasizing phylogenetic interpretations, paleoanthropological and paleontological reconstructions. Prerequisite: 113:013 or 002:131 or consent of instructor.

113:171 Human Evolution 3 s.h.
From earliest fossil record of apes to origin and diversification of hominid family and appearance of Homo sapiens; evidence from paleoanthropology, comparative anatomy, biomolecular studies, archaeology considered from evolutionary perspective. Prerequisite: 002:131 or 012:121 or 113:013 or consent of instructor.

113:187 Human Evolutionary Biology 3 s.h.
The human skeletal system, normal and pathologic variation, skeletal measurement and analysis with application to paleoanthropology, forensic, and archaeological investigations. Prerequisite: 113:190 or consent of instructor.

113:195 Laboratory Methods in Biological Anthropology arr.
Specimen preparation, cataloguing, moulding and casting, photography, computer analyses, library research. Prerequisite: consent of instructor.

113:197 Modern Human Origins 3 s.h.
Current data and theory regarding emergence of anatomically modern humans 50,000-150,000 years ago; emphasis on fossil record, genetic, evolutionary biology, ecology. Prerequisite: 113:013 or consent of instructor.

113:285 Seminar: Biological Anthropology 3 s.h.
Physical anthropology, including heredity and genetics, evolutionary theory, human biological characteristics, primate and human fossil record, primate behavior and ecology, human adaptations. Prerequisite: graduate standing in anthropology or biological sciences or related department or consent of instructor.

113:288 Seminar: Paleoanthropology 3 s.h.
Current understandings of biocultural processes and events underlying Pleistocene human evolution; cross-disciplinary approach combining human paleontology and Paleolithic archaeology. Prerequisite: 113:161 or 113:197 or consent of instructor.

113:290 Feminist Perspectives on Biology and Culture 3 s.h.
Physical anthropology and prehistoric archaeology from a feminist perspective; emphasis on investigation of gender, raising importance of women's investigation; human evolution, rise of the state, division of labor, social stratification in prehistory. Prerequisite: consent of instructor. Same as 131:290.

Linguistic Anthropology

113:100 Introduction to Linguistics 3 s.h.

113:121 Language and Nationalism 3 s.h.
Varied cases of linguistic nationalism: how language has become a powerful symbol for expression of nation's identity across many contexts and circumstances.

113:171 Linguistic Anthropology Field/Lab Method 3 s.h.
Methods for recording and analyzing socially situated language use; skills for documenting actual instances of speech and other forms of expressive culture as they occur; experience integrating digitized images of sound, movement, and ethnographic data; student projects involving language as it occurs in social interaction. Prerequisite: 103:011 or 113:014 or consent of instructor.

113:172 Language and Culture 3 s.h.
Language in relation to organization, variation, change in culture and society. Prerequisite: introductory course in linguistics and general cultural anthropology or consent of instructor. Same as 113:170.

113:173 Language and Gender 3 s.h.
Gender-related language variation; current research on gender-specific linguistic forms and usage in the United States, other language communities; relevant principles of linguistic theory, analysis. GE: cultural diversity. Same as 113:170.

113:179 Language and Identity 3 s.h.
Relationship between using language and maintaining identity, cultural factors in language maintenance and loss. Prerequisite: 113:014 or 113:011 or consent of instructor.

113:244 Seminar: Semiotics 3 s.h.
Peircean semiotic and Saussurean semiological conceptual frameworks; focus on anthropological, linguistic issues.

113:271 Seminar: Linguistic Anthropology 3 s.h.
Fundamental concepts and methods employed in the anthropological study of language; principal areas of current research. Same as 113:220.

113:272 Special Topics: Linguistic Anthropology 3 s.h.
Varied topics. Repeatable. Same as 113:222.

113:273 Seminar: Language and Gender 3 s.h.
Role of language and discourse in cultural constructions of gender identities and relations, including domination and subordination; theoretical perspectives, methodological approaches that have shaped thought on the language/gender nexus. Prerequisite: 113:172 or 113:220 or consent of instructor. Same as 113:221.

Individual Research and Reading

113:176 Honors Research Project 2-4 s.h.
Project chosen in consultation with honors advisor. Prerequisite: consent of instructor.

113:183 Independent Study arr.
Prerequisite: consent of instructor.

113:186 Honors Research Seminar 2-4 s.h.
Preparation for writing honors thesis, including project conception and research, proposal writing, oral and written presentations of student research. Prerequisite: honors standing in anthropology. GE: pre or coreq: 113:176.

113:383 Independent Study: Anthropology arr.
Repeatable.

113:384 Research: Anthropology arr.
Repeatable.

113:385 Thesis arr.
Repeatable.
**Art Education**

The art Teacher Education Program prepares undergraduate and graduate students for licensure to teach art in grades K-12. Because teaching, like art making, is informed by experience, the art education area has established one of the nation's most extensive preservice teaching programs. Students conduct case studies of individuals making and responding to art, observe in art classrooms, teach in a Saturday children's workshop, and participate in artist-in-residence programs in secondary schools. M.A. and Ph.D. students in art education draw on resources in American studies, anthropology, sociology, and the program in literature, science, and the arts to prepare for positions as teachers in museums, colleges or universities, or as art administrators.

**Undergraduate Programs**

**Bachelor of Arts in Art**

The undergraduate program in art requires a foundation in art history as well as an understanding of the formal traditions and contemporary practices in art. Undergraduate students concentrating in studio art begin in the program leading to the B.A. degree and pursue a broad-based knowledge in at least four areas of studio art. Especially interested students with proven abilities may transfer into the B.F.A. program. Application for such transfer normally should be made early in the junior year. B.F.A. students may select an emphasis in ceramics, design, drawing, intermediametalsmithing and jewelry, painting, photography, printmaking, or sculpture.

B.A. students in art must earn at least 70 s.h. of credit in non-art courses. Cross-referenced courses originating in the School of Art and Art History may not be counted as non-art electives. All B.A. candidates must have an exhibition of their studio work before student teaching, preferably at the School of Art and Art History.

The B.F.A. requires that students earn 58 s.h. in courses taken outside the School of Art and Art History and 62 s.h. in courses offered by the school. Prospective B.F.A. students must apply to enter the program after completing at least one semester of work in the studio area of concentration but before completing 50 s.h. in art. B.F.A. candidate reviews are held once each semester of work in the studio area of concentration.

Applications for admission must be submitted to the Teacher Education Program, Teacher Education and Student Services Office, College of Education. Deadlines are June 15 for fall admittance, October 15 for spring admittance, and March 15 for summer admittance. The B.A. in art with art education (teacher certification) requires the following course work.

Two art history courses chosen from these (preferably taken during the first or second year):

- 01H:002 Arts of Africa 3 s.h.
- 01H:003 Art of Pre-Columbian America, Native America, and Oceania 3 s.h.
- 01H:005 Western Art and Culture before 1400 3 s.h.
- 01H:006 Western Art and Culture after 1400 3 s.h.
- 01H:016 Asian Art and Culture 3 s.h.

Two additional art history courses chosen from 01H:001, 01H:004, 01H:010, and 01H:020-01H:199 6 s.h.

Two studio courses:

- 01A:003 Basic Drawing (prerequisite for all studio courses) 3 s.h.
- 01A:004 Design Fundamentals (prerequisite for all studio courses) 3 s.h.

Any two of these three-dimensional courses:

- 01C:060 Ceramics I 3 s.h.
- 01C:084 Introduction to Jewelry and Metal Arts 3 s.h.
- 01J:090 Intermedia I 3 s.h.
- 01N:015 Undergraduate Sculpture I 3 s.h.

Any two of these two-dimensional courses, from two different studio areas:

- 01D:021 Problems in Design I: Form and Structure 3 s.h.
- 01D:028 Graphic Design I 3 s.h.
- 01F:007 Life Drawing I 3 s.h.
- 01K:009 Painting I 3 s.h.
- 01L:034 Beginning Photography 3 s.h.
- 01M:021 Undergraduate Intaglio and Relief I 3 s.h.
- 01M:031 Undergraduate Lithography 3 s.h.

Electives, chosen only from courses that originate in the School of Art and Art History, must bring the total credit in art history, studio art, and art education to a minimum of 38 s.h. No more than 50 s.h. of credit in art history, studio art, and art education courses together may be counted toward the 120 s.h. required for the degree.

**Transfer Students**

Transfer students majoring in art must complete at The University of Iowa a minimum of 12 s.h. in studio art. The studio hours must include work in at least two different studio areas. Undergraduate transfer students majoring in studio art must attend transfer portfolio review and show a portfolio of their art to faculty members, who determine the students' placement in, or exemption from, the sequence of basic studio courses.

**Study Abroad**

Students who wish to study abroad must meet with the undergraduate adviser before they depart to review approval of the studio art and art history courses they plan to take. Upon their return, they should meet with the undergraduate adviser to determine which courses will require portfolio review. Students may need to bring the original art work they completed during their study abroad back to campus for a portfolio review with a faculty member.

**Arts Education**

The Art Education Program requires a broad foundation in formal traditions of studio art, substantive knowledge in art history, and art teacher certification course work. Undergraduate students in art education concentrate in studio art, earning a B.A. or B.F.A. degree, and pursue broad-based knowledge in at least four areas of studio art. Students with proven abilities may transfer into the B.F.A. program and earn art teacher licensure K-12. Application for transfer to the B.F.A. program normally is made early in the junior year. B.F.A. students may select an emphasis in ceramics, design, drawing, intermediametalsmithing and jewelry, painting, photography, printmaking, or sculpture.

Art education with a B.A. in art requires a minimum of 47 s.h. of art and art history course work (9 s.h. more than the minimum requirement for a B.A. without art teacher certification). B.A. students earn at least 70 s.h. in non-art courses. Cross-referenced courses originating in the School of Art and Art History may not be counted as non-art electives. No more than 50 s.h. earned in art history, studio art, and art education courses may be counted toward the degree.

Art education with a B.F.A. requires a minimum of 62 s.h. of art and art history course work. Undergraduate students in art education who earn a B.F.A. with art teacher licensure K-12 typically complete an additional semester of course work. In addition to completing the General Education Program and the major requirements listed below for the B.A. in art with art education, B.F.A. candidates must complete three courses in a studio area of concentration beyond the introductory or beginning course, as well as one introductory course and one advanced level course in each of two additional studio areas. All B.F.A. candidates in drawing and painting are required to take 01F:110 Undergraduate Seminar in Drawing and Painting in addition to the studio courses for the major area. Papemaking, calligraphy, and bookbinding courses may not be used as major or minor areas. Cross-referenced courses offered by the School of Art and Art History may not be counted as non-art electives. All B.F.A. candidates must have an exhibition of their studio work before student teaching, preferably at the School of Art and Art History.

The B.F.A. requires that students earn 58 s.h. in courses taken outside the School of Art and Art History and 62 s.h. in courses offered by the school. Prospective B.F.A. students must apply to enter the program after completing at least one semester of work in the studio area of concentration but before completing 50 s.h. in art. B.F.A. candidate reviews are held once each semester.

Applications for admission must be submitted to the Teacher Education Program, Teacher Education and Student Services Office, College of Education. Deadlines are June 15 for fall admittance, October 15 for spring admittance, and March 15 for summer admittance. The B.A. in art with art education (teacher certification) requires the following course work.

Two art history courses chosen from these (preferably taken during the first or second year):

- 01H:002 Arts of Africa 3 s.h.
- 01H:003 Art of Pre-Columbian America, Native America, and Oceania 3 s.h.
- 01H:005 Western Art and Culture before 1400 3 s.h.
- 01H:006 Western Art and Culture after 1400 3 s.h.
- 01H:016 Asian Art and Culture 3 s.h.

Two additional art history courses chosen from 01H:001, 01H:004, 01H:010, and 01H:020-01H:199 6 s.h.

Two studio courses:

- 01A:003 Basic Drawing (prerequisite for all studio courses) 3 s.h.
- 01A:004 Design Fundamentals (prerequisite for all studio courses) 3 s.h.

Any two of these three-dimensional courses:

- 01C:060 Ceramics I 3 s.h.
- 01C:084 Introduction to Jewelry and Metal Arts 3 s.h.
- 01J:090 Intermedia I 3 s.h.
- 01N:015 Undergraduate Sculpture I 3 s.h.
Four 2-dimensional courses from four different studio areas:

- 01D:021 Problems in Design I: Form and Structure 3 s.h.
- 01D:028 Graphic Design I 3 s.h.
- 01F:007 Life Drawing I 3 s.h.
- 01K:009 Painting I 3 s.h.
- 01L:034 Beginning Photography 3 s.h.
- 01M:021 Undergraduate Intaglio and Relief I 3 s.h.
- 01M:031 Undergraduate Lithography 3 s.h.

Electives, chosen only from courses offered by the School of Art and Art History, must bring the total credit in art history, studio art, and art education to a minimum of 47 s.h. Students often select two additional studio courses in an area of emphasis. No more than 50 s.h. of credit in art history, studio art, and art education courses combined may be counted toward the degree.

Transfer students majoring in art must complete at The University of Iowa a minimum of 3 s.h. in art history and 12 s.h. in studio art. The studio art credit must include work in at least two different studio areas.

Undergraduate transfer students majoring in studio art must, during their first week in residence, show a portfolio of their art to faculty members, who determine each student’s placement in or exemption from the sequence of basic studio courses.

**Minor in Art**

A minor in art requires 15 s.h. in art courses with a g.p.a. of 2.00 or higher. Students must complete 01B:001 Elements of Art, or the equivalent, and 12 s.h. of studio art courses taken at The University of Iowa. Studio courses must include one introductory-level course and one advanced-level course in two different studio areas. One art history course may be included in the 15 s.h. of course work in lieu of an advanced-level studio class. In selecting courses, students should pay close attention to the stated prerequisites for individual courses. Graphic design, bookmaking, and bookbinding courses, any course with a 01E or 01F prefix, 01A:003 Basic Drawing and 01A:004 Design Fundamentals may not be used to satisfy the requirements for a minor.

Course work applied toward a minor in art may not be used to satisfy the requirements for a major in art or in art history.

**Bachelor of Arts in Art History**

Because the history of art is engaged in problems of historical analysis and the interpretation of culture, it provides students with a broad background in the humanities consistent with a liberal arts and sciences education. The undergraduate degree program is designed to prepare students for competitive placement in graduate schools across the country. As students progress through the program, they become familiar with historical relationships between art objects and society, learn techniques of formal analysis, study patterns of patronage, and absorb methods for interpreting the meaning of paintings, sculptures, and buildings. In the course of their studies, art history majors develop their research abilities and writing skills.

The B.A. in art history requires the following course work (total of 45-46 s.h.). Not all courses are offered every year. Students should take required survey courses (numbered 002, 003, 005, 006, and 016) and introductory courses (numbered 020-085) before taking advanced courses (numbered 103-196).

Both of these, in sequence, normally during the first or second year:

- 01H:005 Western Art and Culture before 1400 3 s.h.
- 01H:006 Western Art and Culture after 1400 3 s.h.

One of these:

- 01H:002 Arts of Africa 3 s.h.
- 01H:003 Art of Pre-Columbian America, Native America, and Oceania 3 s.h.
- 01H:016 Asian Art and Culture 3 s.h.

Four courses chosen from 01H:020 through 01H:085 12 s.h.

Four courses chosen from 01H:103 through 01H:196 12 s.h.

- 01H:199 Topics in Art History 3 s.h.
- 01H:010 Tutorial for Majors: Art History as a Discipline 3 s.h.
- 01H:099 Undergraduate Seminar in the History of Art (normally in junior or senior year) 3 s.h.

Studio courses 6 s.h.

No more than 50 s.h. of credit in art history and studio may be counted toward the minimum 120 s.h. required for the degree.

**CREDIT IN DISCIPLINES OUTSIDE ART HISTORY**

Art history majors must take courses in at least three of the following disciplines: anthropology, classics, history, literature, philosophy, political science, religion, sociology, or others approved by faculty advisers, for a total of 12 s.h.

**Transfer Students**

Transfer students planning to major in art history should meet with the undergraduate adviser to discuss the requirements they may fulfill with transfer courses. Art history transfer courses must be reviewed by the art history division head to determine the student’s placement in or exemption from required art history courses.

**Study Abroad**

Students who wish to study abroad must meet with the undergraduate adviser before they depart to review approval of the art history courses they plan to take. Upon their return, they should meet with the art history division head to review their art history course work and confirm the credit they have earned.

**Minor in Art History**

A minor in art history requires 15 s.h. of courses in art history, with a g.p.a. of at least 2.00. Twelve of the 15 s.h. must be taken in advanced-level courses at The University of Iowa (courses numbered 01H:020 and above). Students planning a minor in art history are required to take at least one of these survey-level courses: 01H:002, 01H:003, 01H:005, 01H:006, or 01H:016. Course work applied toward a minor in art history may not be used to satisfy the requirements for a major in art or art history.

**Bachelor of Fine Arts in Studio**

Prospective B.F.A. students must apply to enter the program after completing at least one semester of work in the studio area of concentration, but before completing 50 s.h. in art. B.F.A. candidate reviews are held once each semester.

Students who wish to enter the B.F.A. program should consult the faculty in the studio area of concentration for information about the required portfolio review.

The B.F.A. requires that the 120 s.h. required for graduation include 58 s.h. from courses taken outside the School of Art and Art History and 62 s.h. in School of Art and Art History courses.

In addition to completing the General Education Program and major requirements listed above for the B.A. in art, B.F.A. candidates must complete three courses in a studio area of concentration beyond the introductory or beginning course, as well as one introductory course and one advanced-level course in each of two additional studio areas. All B.F.A. candidates in drawing and painting are required to take 01F:106 Undergraduate Seminar in Drawing and Painting in addition to the studio courses for the major area. Papermaking, calligraphy, and bookbinding may not be used as major or minor areas. Cross-referenced courses originating in the School of Art and Art History may not be counted as non-art electives.

All B.F.A. candidates must have an exhibition of their studio work, preferably at the School of Art and Art History.

Art education majors in the B.F.A. program must meet the same teacher licensure requirements as must students in the B.A. program.

**Four-Year Graduation Plan**

The following checklists list the minimum requirements students must complete by certain semesters in order to stay on the University’s Four-Year Graduation Plan.

**B.A. in Art**

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

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

Before the eighth semester begins: at least 11 courses in the major

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

B.A. in Art History

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

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

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

Before the eighth semester begins: at least 11 courses in the major

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

Bachelor of Fine Arts

Admission to the program leading to the B.F.A. degree in art is limited and depends on the department's evaluation of the student's work. In order to participate in the four-year graduation plan, students must be admitted to the degree program on schedule as determined by the art adviser.

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

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

Before the seventh semester begins: at least 14 courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: at least 18 courses in the major

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

Honors

Art and art history majors who are members of the University Honors Program may enroll in the honors program of the School of Art and Art History. Membership in the University Honors Program requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information).

To earn a degree with honors in art history, students must complete the requirements for the B.A. in art history with a g.p.a. of at least 3.50 in art history courses. Each student also must write an honors thesis of 4,000-5,000 words. When possible, students should enroll in an upper-division art history course relevant to their thesis topic and should write the thesis in the context of the course, for an additional 1 s.h. of credit. When no appropriate course is offered, students may write a thesis of 5,000-10,000 words for 3 s.h. of credit.

In either case, students work with an art history faculty member as their thesis adviser. They must have the thesis adviser's approval before beginning work on their thesis project. The thesis should conform to the Graduate College format for theses.

Honors students in studio must maintain a g.p.a. of at least 3.50 in the major. Each student must complete an honors project, supervised by a faculty member, prepare a statement of the sources of the studio work, and hold an exhibition of the honors project. The statement may be based on the history of art, history of ideas, philosophy, and so forth, and should be written under the supervision of faculty in the student's studio concentration area. Students must register for 01P:190 Honors in Studio Art for 0-3 s.h.

Graduate Programs

Master of Arts in Art History

The school offers the M.A. in art with majors in ceramics, design, drawing, intermedia and video art, metalsmithing and jewelry, painting, photography, printmaking, and sculpture.

Requirements for the M.A. in art are:

- A B.A. or B.F.A. in art equivalent to that offered at The University of Iowa;
- A minimum of 38 s.h. of graduate credit, including 18 s.h. of studio and art history in a ratio of two to one (either 12 s.h. of graduate credit in studio and 6 in art history, or 6 in studio and 12 in art history), 8 s.h. in graduate seminars in art education, and 12 s.h. to be specified after the student begins the program; and
- A written thesis based on research in art education, creative scholarship, or art history.

Art education majors may elect to take art history courses on a satisfactory-unsatisfactory basis.

Master of Arts in Art Education

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

- A B.A. or B.F.A. in art equivalent to that offered at The University of Iowa;
- Teaching licensure/certification in art;
- A minimum of 38 s.h. of graduate credit, including 18 s.h. of studio and art history in a ratio of two to one (either 12 s.h. of graduate credit in studio and 6 in art history, or 6 in studio and 12 in art history), 8 s.h. in graduate seminars in art education, and 12 s.h. to be specified after the student begins the program; and
- A written thesis based on research in art education, creative scholarship, or art history.

Art education majors may elect to take art history courses on a satisfactory-unsatisfactory basis.

Master of Fine Arts in Art

The school offers the M.F.A. with a major in ceramics, design, drawing, intermedia and video art, metalsmithing and jewelry, painting, photography, printmaking, or sculpture. M.A. students advance to the M.F.A. program by invitation following completion of the M.A. degree.

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

- A M.A. degree in art equivalent to that offered at The University of Iowa;
- A minimum of 60 s.h. of graduate work, including at least 18 s.h. in a major studio subject, at least 9 s.h. in a minor studio field selected from the fields listed above, 6 s.h. in art history and theory of art, 6 s.h. in courses originating outside the school, and a drawing course at The University of Iowa (if not already taken);
- M.F.A. committee review;
- Written theses and possibly a studio thesis.

Transfer credits are decided by faculty review. M.F.A. students may earn 1 s.h. for writing a technical or substantial thesis by registering for 01A:304, with approval of the thesis supervisor. Thesis credit earned in an M.A. program is not applicable toward M.F.A. requirements.

Bachelor of Fine Arts

Admission to the program leading to the B.F.A. degree in art is limited and depends on the department's evaluation of the student's work. In order to participate in the four-year graduation plan, students must be admitted to the degree program on schedule as determined by the art adviser.

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

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

Before the seventh semester begins: at least 14 courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: at least 18 courses in the major

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

Honors

Art and art history majors who are members of the University Honors Program may enroll in the honors program of the School of Art and Art History. Membership in the University Honors Program requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information).

To earn a degree with honors in art history, students must complete the requirements for the B.A. in art history with a g.p.a. of at least 3.50 in art history courses. Each student also must write an honors thesis of 4,000-5,000 words. When possible, students should enroll in an upper-division art history course relevant to their thesis topic and should write the thesis in the context of the course, for an additional 1 s.h. of credit. When no appropriate course is offered, students may write a thesis of 5,000-10,000 words for 3 s.h. of credit.

In either case, students work with an art history faculty member as their thesis adviser. They must have the thesis adviser's approval before beginning work on their thesis project. The thesis should conform to the Graduate College format for theses.

Honors students in studio must maintain a g.p.a. of at least 3.50 in the major. Each student must complete an honors project, supervised by a faculty member, prepare a statement of the sources of the studio work, and hold an exhibition of the honors project. The statement may be based on the history of art, history of ideas, philosophy, and so forth, and should be written under the supervision of faculty in the student's studio concentration area. Students must register for 01P:190 Honors in Studio Art for 0-3 s.h.

Graduate Programs

Master of Arts in Art History

The school offers the M.A. in art with majors in ceramics, design, drawing, intermedia and video art, metalsmithing and jewelry, painting, photography, printmaking, and sculpture.

Requirements for the M.A. in art are:

- A B.A. or B.F.A. in art equivalent to that offered at The University of Iowa;
- A minimum of 38 s.h. of graduate credit, including 18 s.h. of studio and art history in a ratio of two to one (either 12 s.h. of graduate credit in studio and 6 in art history, or 6 in studio and 12 in art history), 8 s.h. in graduate seminars in art education, and 12 s.h. to be specified after the student begins the program; and
- A written thesis based on research in art education, creative scholarship, or art history.

Art education majors may elect to take art history courses on a satisfactory-unsatisfactory basis.

Master of Arts in Art Education

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

- A B.A. or B.F.A. in art equivalent to that offered at The University of Iowa;
- Teaching licensure/certification in art;
- A minimum of 38 s.h. of graduate credit, including 18 s.h. of studio and art history in a ratio of two to one (either 12 s.h. of graduate credit in studio and 6 in art history, or 6 in studio and 12 in art history), 8 s.h. in graduate seminars in art education, and 12 s.h. to be specified after the student begins the program; and
- A written thesis based on research in art education, creative scholarship, or art history.

Art education majors may elect to take art history courses on a satisfactory-unsatisfactory basis.

Master of Fine Arts in Art

The school offers the M.F.A. with a major in ceramics, design, drawing, intermedia and video art, metalsmithing and jewelry, painting, photography, printmaking, or sculpture. M.A. students advance to the M.F.A. program by invitation following completion of the M.A. degree.

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

- A M.A. degree in art equivalent to that offered at The University of Iowa;
- A minimum of 60 s.h. of graduate work, including at least 18 s.h. in a major studio subject, at least 9 s.h. in a minor studio field selected from the fields listed above, 6 s.h. in art history and theory of art, 6 s.h. in courses originating outside the school, and a drawing course at The University of Iowa (if not already taken);
- M.F.A. committee review;
- Written theses and possibly a studio thesis.

Transfer credits are decided by faculty review. M.F.A. students may earn 1 s.h. for writing a technical or substantial thesis by registering for 01A:304, with approval of the thesis supervisor. Thesis credit earned in an M.A. program is not applicable toward M.F.A. requirements.
including transfer students, must take at least 24 s.h. in residence at The University of Iowa. M.A. in art history candidates must earn a grade of B or higher in semester-long courses (100-level) in five of the following nine distribution fields: African (Oceanic), Asian, ancient (3000 B.C.- 300 A.D.), medieval (300-1400 A.D.), Renaissance, Baroque, 18th- and 19th-century European, American (Pre-Columbian, Native American, and African American), and modern/contemporary. These courses must be taken after receipt of the B.A. degree. However, a student who earned a grade of B or higher in an intermediate-level course in the same field during his or her undergraduate career may apply credit for a graduate seminar toward a distribution field requirement.

**REQUIRED COURSES**

M.A. in art history students must complete the following course work.

01H:200 History and Methods 3 s.h.
Two art history seminars (with different instructors in different fields) 6 s.h.
Additional art history or studio courses, or major field, two, the School of Art and Art History 6 s.h.

History and Methods (01H:200) must be taken during the first fall semester of the student’s residency. Incoming students who already have taken a comparable graduate-level course at another university may petition the art history faculty to waive this requirement.

Courses outside the curriculum of the School of Art and Art History's art history division do not carry art history credit. Cross-referenced courses not taught by art history faculty members may not be included in the degree.

**Directed Studies**

Directed Studies (01H:300) is designed for graduate students who already have taken an advanced course or courses in a specific art history area. It provides students with an opportunity to work one-to-one with a professor on specific research interests developed in lecture courses or seminars, or on topics that eventually may be the subject of a thesis or dissertation. Directed Studies cannot be substituted for a lecture course already offered in the program. Normally, students have taken at least one course with a professor before taking Directed Studies with that professor. To take Directed Studies, students must discuss the course with the professor and have his or her approval. Directed Studies may be taken only once in any semester. Students may earn 1-3 s.h. for a single registration in the course but may not count more than 3 s.h. toward M.A. requirements.

Students taking Directed Studies for 1-2 s.h. normally meet with the directing professor every other week and complete readings and short written assignments. Those taking the course for 3 s.h. normally meet once a week and complete extensive readings, annotated bibliographies, and a substantial paper on a specific topic.

**FOREIGN LANGUAGES**

Within the first 20 s.h. of graduate study, students must demonstrate the ability to read art history writings in an appropriate second foreign language. This requirement, which is in addition to the foreign language requirement for admission to the M.A. program, generally is fulfilled either by the satisfactory completion of the second semester of a graduate-level reading-for-research language course or the completion, with a grade of B or higher, of the fourth semester of an undergraduate language sequence. Language requirements are fulfilled with German and French.

Credit earned in language courses taken to fulfill the language requirement does not count toward the 30 s.h. required for the degree.

**M.A. THESIS**

Before graduation, M.A. candidates complete a written thesis (01H:302 M.A. Written Thesis) for 3 s.h. of credit. This credit can be applied toward the degree but cannot be substituted for other required courses.

The M.A. degree committee consists of the student’s faculty mentor and two additional tenured or tenure-track members of the art history faculty.

**FINAL EXAMINATION**

The final examination constitutes an oral defense of the written M.A. thesis. The final examination meeting with the M.A. degree committee normally takes place toward the end of the student’s last semester of course work.

**Doctor of Philosophy in Art History**

Graduates with Ph.D. degrees have gained breadth in the discipline of art history and expertise in a specialized area of research. They are expected to contribute to the field of art history through original research that responds to issues deemed critical to their field of concentration. Graduates with Ph.D. degrees generally anticipate careers in college or university teaching or in the museum profession.

To earn a Ph.D. in art history, students must complete a minimum of 72 s.h. of graduate-level course work with a g.p.a. of at least 3.50; a maximum of 38 s.h. of work taken for the M.A. may be counted toward this requirement. Students are allowed only one semester of academic probation.

To establish academic residency, candidates must be enrolled as full-time students at The University of Iowa for two semesters (at least 9 s.h. each) beyond the first 24 s.h. of graduate-level course work or three semesters (at least 6 s.h. each) with a one-quarter-time assistantship.

Ph.D. candidates may take two of the following nine distribution fields: African (Oceanic), Asian, ancient (3000 B.C.-300 A.D.), medieval (300-1400 A.D.), Renaissance, Baroque, 18th- and 19th-century European, American (Pre-Columbian, Native American, and African American), and modern/contemporary. Candidates also minor in two fields. The first minor must be in an art history distribution field that is not contiguous with the major field. The second minor may be in any art history distribution field or relevant discipline outside the art history division.

**REQUIRED COURSES**

Ph.D. in art history students must complete the following course work.

Three art history seminars (different instructors in different fields) 9 s.h.
Additional art history courses 15-27 s.h.
Courses outside the School of Art and Art History 0-12 s.h.

Up to 6 s.h. of credit for dissertation research may be applied toward the 72 s.h. required for the degree. Courses outside the curriculum of the School of Art and Art History's art history division do not carry art history credit.

**Directed Studies**

Normally, a maximum of 6 s.h. earned in 01H:300 Directed Studies may be applied toward the semester-hour requirement for the Ph.D., although doctoral candidates may petition the art history faculty for permission to apply up to 9 s.h.

**PH.D. DEGREE COMMITTEE**

The Ph.D. degree committee consists of the student’s faculty mentor, who is responsible for the major field, two members responsible for the two minor fields, and at least two additional members. Of these five, four must be tenured or tenure-track faculty members from the art history division. One must be from outside the division and must be on the faculty of the Graduate College. When appropriate, committees may include additional members.

**COMPREHENSIVE EXAMINATION**

Upon completion of course requirements, the Ph.D. candidate takes three written comprehensive examinations. The major exam consists of six questions and lasts six hours; the two minor exams each consist of three questions and last three hours. The exams normally are taken on two consecutive days.

The scope of the comprehensive exams is determined in consultation with the candidate’s degree committee supervisor and the committee members responsible for the two minor fields.

**ORAL COMPREHENSIVE EXAMINATION**

Within approximately one month of completing the three written exams, the candidate meets with his or her degree committee for the oral comprehensive examination, which concentrates on questions that arise from the written comprehensive exams.

**DISSERTATION PROPOSAL**

As soon as possible after completing the comprehensive examinations, the candidate submits a dissertation proposal to his or her degree committee supervisor and subsequently to the degree committee. The committee meets as a group with the candidate to discuss the dissertation proposal and to offer comments and suggestions. (The proposal must be submitted to the committee at least two weeks before the approval meeting.) The proposal includes a 1-2 page abstract, a 10-15 page précis (including a review of the state of the field), and a bibliography.

After the proposal has been approved by the committee, the candidate circulates an abstract to
the entire art history faculty. He or she must present a public lecture about the dissertation topic no later than the end of the semester following the degree committee’s approval. The lecture must be scheduled with the head of art history.

**FINAL EXAMINATION**

The completion of a written dissertation, which constitutes an original scholarly contribution to the field, and the successful completion of the final examination (the oral defense) of this dissertation are the final Ph.D. requirements.

**Doctor of Philosophy in Art Education**

The Ph.D. in art education gives college teachers and researchers in art education and art supervisors in state departments of education and school systems an opportunity to continue their inquiry and creative work in art history and in studio art.

The program is administered by the College of Education, in cooperation with the School of Art and Art History. Students must apply for admission to the College of Education.

**Degree Requirements**

Students must complete at least 60 s.h. of graduate work beyond the M.A. The curriculum must be planned with the adviser and must include at least 15 s.h. in the School of Art and Art History, 15 s.h. in art education graduate seminars, 15 s.h. in a related area (e.g., aesthetics, anthropology, higher education, psychology, sociology), and 15 s.h. in thesis and tool courses (07E:306 Introduction to Research in Art Education).

Students must take both oral and written comprehensive examinations. The written examination consists of an in-depth research problem to be completed within 14 days, after which an oral examination on the project is held. The research problem is assigned by the examining committee, and the written portion of the examination is not intended to relate directly to the student’s dissertation proposal.

Students also must complete a written dissertation for at least 12 s.h. of credit and are expected to prepare a dissertation proposal and defend it before the dissertation committee. An oral examination on the dissertation is the Ph.D. final examination.

**Graduate Admission**

Acceptance into the graduate program in art and art history requires admission to The University of Iowa Graduate College as well as to the School of Art and Art History. Decisions regarding admission and assistantships cannot be confirmed until applicant files are complete.

Completed applications for the master’s or doctoral program in art history and requests for financial aid must be submitted by January 15 for fall admission.

Completed applications for the master’s program in all areas of studio art and requests for financial aid must be submitted by February 1 for fall admission. Complete application materials should be sent to the graduate secretary, School of Art and Art History.

The Office of Graduate Admissions notifies all applicants by mail of admission decisions. Acceptance notification cannot be given over the phone by either the admissions office or the School of Art and Art History.

Applicants whose native language is not English must take and pass the Test of English as a Foreign Language (TOEFL), unless they have received a degree from an accredited college or university in the United States, the United Kingdom, Canada (except Quebec), Australia, or New Zealand. A minimum TOEFL score of 550 (paper-based test) or 213 (computer-based test) is required for admission to the studio program; a minimum score of 600 (paper-based test) or 250 (computer-based test) is required for art history. The examination is given at various times of the year and in many centers throughout the world.

All applicants must submit the following to the Office of Graduate Admissions:

- a completed application for admission (one area of interest must be specified on the application form);
- GRE scores, and TOEFL scores (if applicable);
- the required application fee; and
- an official copy of all undergraduate transcripts and/or graduate work completed by the date of application.

Art history applicants must include Graduate Record Examination Aptitude Test scores with their application for admission, in accordance with the appropriate application deadlines. Studio or art education applicants who do not submit GRE General Test scores at the time of application must do so by their first semester in residence. In addition, applicants must meet the graduate application requirements for the particular programs for which they seek admission, as follows.

**STUDIO ART**

Admission procedures for graduate studio programs include a review of applications and all of the applicant’s supporting material by a committee composed of area faculty members. Complete application materials for graduate degrees in studio art must be on file in the School of Art and Art History by February 1.

Applicants must submit the following to the graduate secretary at the School of Art and Art History: a one-page statement of purpose, official transcripts for all undergraduate and graduate work completed by the date of application, three letters of recommendation assessing potential as a graduate student, application for graduate awards (if desired), and application for graduate scholarships and fellowships (if desired). They also must submit one of the following portfolios. (Portfolios are returned by mail only if return postage is supplied by the applicant.)

- Ceramics, design, intermedia and video art, metalsmithing and jewelry, or painting: 8 slides and/or photos of work in the major area and 2 slides or photos of work in a second studio area
- Drawing: 8 slides or photos of drawings, including figure drawings, and 2 slides or photos of work in a second studio area
- Photography: a selection of 20-25 slides or prints in the major field of work and 2-3 slides or photos of work in a second studio area
- Printmaking: a selection of 6-20 original prints and at least 6 original drawings in a returnable carton or mailing tube, and 8-10 slides or photos of prints
- Sculpture: a selection of 20 slides that includes examples of work in at least one other area of competence and at least two drawings

Each slide must be enclosed in a slide sheet and labeled with the name, title, portfolio medium, size, and approximate date of work; the top should be indicated. An inventory list with the same information should be included. Extreme care will be taken in handling all portfolios, but the school cannot be responsible for reimbursement in the event of loss or damage.

**ART HISTORY—M.A.**

Applicants to the M.A. program in art history must have earned a bachelor’s degree. Proficiency in at least one foreign language, shown by completion of two years (or the equivalent) of undergraduate language courses work with a grade of B or higher is required for admission.

Although exceptions sometimes are made, applicants should have GRE General Test scores of at least 1200 (combined verbal and quantitative) and an undergraduate g.p.a. of at least 3.25 on a 4.00 scale.

In addition to the admissions materials required by the Graduate College, the School of Art and Art History requires that applicants submit a research paper (preferably from an art history course) or undergraduate thesis that demonstrates the applicant’s ability to do future research in art history; a 500- to 1,000-word essay that outlines the applicant’s purpose in pursuing graduate studies and states his or her intellectual interests and career goals; three letters of recommendation that assess the applicant’s potential for graduate study; and transcripts from all colleges and universities attended. The materials should be submitted by January 15 to the School of Art and Art History’s graduate secretary.

**ART HISTORY—PH.D.**

Applicants for admission to the Ph.D. program in art history must have earned an M.A. in art history or a related graduate degree. Proficiency in at least two foreign languages, shown by completion of the second semester of a graduate-level reading-for-research language course, or completion of the fourth semester of an undergraduate language sequence with a grade of B or higher, is required for admission.

Although exceptions may be made, applicants should have GRE General Test scores of at least 1200 (combined verbal and quantitative) and a graduate g.p.a. of at least 3.50 on a 4.00 scale.

Students who have completed their M.A. degrees at The University of Iowa and who wish to apply for entrance into the Ph.D. program must make a
formal application to the program. Applications are evaluated in the context of the entire applicant pool.

In addition to the admissions materials required by the Graduate College, the School of Art and Art History requires that applicants submit a thesis or other major research paper, a 500- to 1,000-word essay that outlines the applicant’s purpose in pursuing graduate studies and states his or her intellectual interests and career goals; three letters of recommendation, including one from the applicant’s M.A. thesis supervisor assessing the applicant’s potential for doctoral study; and transcripts from all colleges and universities attended. The materials should be submitted to the School of Art and Art History’s graduate secretary.

Completed applications for the master’s or doctoral program and requests for financial aid must be submitted to the School of Art and Art History’s graduate secretary by January 15.

ART EDUCATION

Applicants must submit to the School of Art and Art History’s graduate secretary a one-page paper that states their purpose and three letters of recommendation that assess their potential for graduate study.

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

For admission to the Ph.D. in art education, students must meet the Graduate College’s general admission requirements for doctoral students and must have an M.A. degree in art education from The University of Iowa or an equivalent degree from an accredited college or university. Students who have course work deficiencies must register for pertinent courses.

Candidates must have completed one year of successful teaching experience in an elementary or secondary school to be eligible for the doctoral degree.

Application to the Ph.D. program must be accompanied by a representative portfolio of the candidate’s work, consisting of 12 colored slide reproductions of art work and two examples of written work, which may consist of previously written papers or new work. The portfolio should be submitted to the Art Education Office. Complete application materials for graduate admission in art education must be on file in the College of Education by February 1 for fall admission.

Financial Support

Fellowships, teaching assistantships, research assistantships, and tuition scholarships are awarded to graduate students on the basis of artistic and/or scholarly record.

In the studio programs, financial aid to new students is possible, but most assistantships and scholarships are awarded to graduate students who have been in residence for at least a year. This gives faculty members an opportunity to observe their performance and potential.

Presidential Graduate Fellowships
These fellowships are awarded by the Graduate College on the basis of a University-wide competition among incoming Ph.D. students. Each fellowship is a four-year package, including two years on fellowship and two years on teaching or research assistantships. They include stipends plus full tuition scholarships. The school nominates incoming students for Presidential Graduate Fellowships on the basis of Graduate Record Examination scores, grade-point average, and letters of recommendation.

Teaching and Research Assistantships

Assistantships are awarded to graduate students on the basis of academic record, Graduate Record Examination scores, promise as scholars or artists, and demonstrated ability to do the job. Quality of performance in one’s graduate program at Iowa is generally the major criterion for awarding teaching assistantships. The number of hours of work required depends on the amount of the award.

Scholarships and Fellowships

The School of Art and Art History offers a variety of scholarships and fellowships made possible by contributions from alumni who wish to support promising artists and scholars. These awards are made on the same basis as teaching and research assistantships.

Information and application materials for graduate scholarships and fellowships are included in the admissions package. They also are available from the School of Art and Art History director’s secretary.

Renewal or reappointment for fellowships and assistantships depends on adequate progress toward the degree (graduate students must accumulate at least 18 s.h. of graduate credit each calendar year and maintain a grade-point average above the required minimum) and satisfactory performance of assistantship duties.

Decisions on assistantships and financial aid generally are made during the latter part of the spring semester for the following academic year. In most cases, applications and all relevant materials should be on file by February 1.

Special Resources

Reference Collections

The art library contains 100,000 volumes, an outstanding periodical collection, and an extensive microfilm and microfiche archive. The school’s Office of Visual Materials contains 300,000 slides, 30,000 photographs, a videotape library, and a digital image library.

Museum of Art

The University’s Museum of Art has a significant permanent collection that includes major holdings of 20th century and contemporary art, African and Pre-Columbian art, English and American silver, European and American prints, drawings and photographs, and Etruscan, Iranian, and contemporary American ceramics. As well as serving as a resource for research in a wide variety of art history areas, the museum offers a program of exhibitions, lectures, and recitals.

Interdisciplinary Resources

Colloquia, visiting artists and lecturer programs, and graduate workshops bring visitors to the school and provide open forums for discussion of issues in art and scholarship.

Among the school’s major assets is the Project for Advanced Study of Art and Life in Africa (PASALA), an interdisciplinary program that brings together faculty with international reputations in art history and anthropology to offer courses and independent study of art and expressive culture in West, Central, East, and South Africa. The result is a program of unusual breadth and depth of expertise. PASALA is among the most active of such programs in the country, organizing international symposia that discuss significant topical issues and publishing the proceedings in regular issues of Iowa Studies in African Art. Each year the project hosts distinguished international fellows from a range of disciplines who work with students and faculty on original research projects. In addition, PASALA offers scholarships and support for research in Africa and dissertation preparation to outstanding students. A major resource for PASALA is the Stanley Collection of African Art in The University of Iowa Museum of Art.

Art history participates in a collegewide program called Crossing Borders, which offers support to designated graduate student fellows whose dissertation topics involve multiple foreign language areas. Fellows take team-taught seminars in a range of disciplines, with focus on interactions across cultural, regional, or national divides. They help plan an annual convocation, at which they and invited lecturers present their research.

The school also maintains an affiliation with the University’s American Studies Program, providing students with opportunities to study not only the history of American art but a variety of interdisciplinary programs in American history, literature, and politics.

Facilities

The school houses a printshop containing intaglio, lithographic, and monotype equipment and facilities for hot-stamping foil; facilities for welding and fabrication of steel sculpture; excellent drawing studios in the main building as well as individual studios for painting and drawing, and a B.F.A. painting studio space; a well-equipped darkroom and a digital photography laboratory; extensive kiln facilities, including provision for construction of various types of temporary and specialized kilns; a large shop for metalworking and industrial design; electroforming equipment; a papemaking mill; a silkscreen and offset print shop; a computer laboratory for graphic design; video equipment; and a schoolwide computer lab.

The sculpture area maintains a full range of welding facilities and specializes in heliarch, MIG, TIG, and oxyacetylene equipment. There
are facilities for metal forming, such as a large wide-mouth gas forge, metal rollers, and shears. The area also maintains a bronze casting facility that includes furnaces and burn-out kilns for investment, ceramic shell, and bonded sand.

**Courses**

**Art History—Primarily for Undergraduates**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>01H:001</td>
<td>Art and Visual Culture</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>01H:002</td>
<td>Arts of Africa</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>01H:003</td>
<td>Art of Pre-Columbian America, Native America, and Oceania</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>01H:004</td>
<td>Masterpieces: Art and Cultural Perspective</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>01H:010</td>
<td>Tutorial for Majors: Art History as a Discipline</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>01H:016</td>
<td>Asian Art and Culture</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>01H:021</td>
<td>Introduction to the Art of Western Asia</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>01H:022</td>
<td>Introduction to the Art of Central Asia</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>01H:026</td>
<td>Ancient Art</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>01H:031</td>
<td>Introduction to the Art of China</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>01H:033</td>
<td>Introduction to the Art of Japan</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>01H:040</td>
<td>Introduction to Medieval Art</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>01H:047</td>
<td>Introduction to Renaissance Art</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>01H:053</td>
<td>Introduction to Baroque Visual Culture</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>01H:062</td>
<td>Introduction to Nineteenth Century Art</td>
<td>3 s.h.</td>
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<tr>
<td>01H:066</td>
<td>Introduction to American Art</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>01H:073</td>
<td>Introduction to Modern/Contemporary Art</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Art History for Undergraduates and Graduate Students**

An introductory course in the appropriate art history area or consent of instructor is prerequisite for courses numbered above 100. Courses designated “Themes in Art History” consider topics of current interest in the field, organized thematically rather than chronologically.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>01H:084</td>
<td>Introduction to European Architecture</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>01H:085</td>
<td>Introduction to American Architecture</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>01H:099</td>
<td>Undergraduate Seminar in the History of Art</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>01H:103</td>
<td>Art of the South Pacific</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>01H:104</td>
<td>American Indian Art</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>01H:105</td>
<td>Art of Pre-Columbian America</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>01H:106</td>
<td>African Kings</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>01H:107</td>
<td>Art of West Africa</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>01H:109</td>
<td>The Arts of the African Diaspora</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>01H:110</td>
<td>Egyptian Art</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>01H:111</td>
<td>Art and Independence in West Africa</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>01H:112</td>
<td>Art and Independence in South Africa</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>01H:113</td>
<td>Contemporary African Art</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>01H:114</td>
<td>Gender in African Art</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>01H:115</td>
<td>Topics in African Art: Colloquium</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>01H:119</td>
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01H:145 Buildings and Society in Europe 3 s.h.
Architecture from a sociological perspective.

01H:147 Violence and Image in Early Modern Europe 3 s.h.
Images of bloodshed and their sociological function 1500-1750.

01H:150 Seventeenth-Century Dutch and Flemish Painting 3 s.h.
Painting in the age of Rubens, Rembrandt, Vermeer; role of landscape, still life, genre. Prerequisite: 01H:006 or consent of instructor.

01H:151 Inside Baroque: History and Methods of 17th-Century European Painting 3 s.h.
Study of Baroque painting techniques combined with studio practice; team-taught. Prerequisite: consent of instructor. Same as 01A:151.

01H:152 Rembrandt 3 s.h.
Works, life, and legend of the 17th century Dutch master painter. Prerequisite: 01H:006 or consent of instructor.

01H:155 The Romantic Revolution 3 s.h.
Transformations in European art and culture 1750-1850, an age of artistic, political, cultural, intellectual crisis and revolutions; major artists, including Davide, Enges, Gerritsen, Delarousse, Goya, Feidricht, Constable, Turner.

01H:156 Nineteenth-Century Art in Britain 3 s.h.
Painting, sculpture, prints, and book illustration in context of literary, aesthetic, cultural history; rapport between word and image—Blake, Constable, Turner, Ruskin, Morris, the Pre-Raphaelites, the aesthetic movement.

01H:157 Paris and the Art of Urban Life 3 s.h.
City of Paris examined in varied historical, artistic, cultural contexts; interdisciplinary. Same as 009:130, 033:130.

01H:158 Realism, Impressionism, Postimpressionism 3 s.h.
Naturalism, Realism, the Impressionist landscape, painting of modern life, news in subjectivity and existentialism mid-19th century; European art and culture; Courbet, Manet, Degas; Monet, Monet, Seurat, Cezanne, Van Gogh, Gauguin, Ensor, Much.

01H:159 Manet to Matisse 3 s.h.
Development of modernism and the avant-garde in late 19th- and early 20th-century Paris; intersection of innovation and tradition, literature and art; role of theory and criticism in works of Manet, Degas, Seurat, Cezanne, Gauguin, Rodin, Matisse, Picasso.

01H:162 National Images: American Art to 1865 3 s.h.
Painting, sculpture, and architecture from colonial times to Civil War. Prerequisite: 01H:006 or 01H:066 or consent of instructor.

01H:163 The American Renaissance and the Gilded Age 3 s.h.
Architecture, painting, sculpture 1865-1913. Prerequisite: 01H:006 or 01H:066 or 01H:162 or consent of instructor.

01H:165 American Western Art 3 s.h.
Painting and sculpture of the western United States, primarily from Euro-American perspective. Prerequisite: 01H:006 or 01H:066 or consent of instructor.

01H:166 Shaping American Cities 3 s.h.
How aesthetic, social, and political ideas have influenced American urban built environment, colonial era to present. Prerequisite: 01H:006 or 01H:066 or 01H:084 or consent of instructor.

01H:167 African American Art and Architecture 3 s.h.
Visual and material culture of African Americans, including painting, sculpture, decorative arts, and film, examined from aesthetic and ideological perspectives.

01H:170 Modernism and Early Twentieth-Century American Art 3 s.h.
American responses to European Modernism in painting, sculpture, architecture, and photography. Prerequisite: 01H:006 or 01H:066 or consent of instructor.

01H:171 Modern Art 3 s.h.
European and American art 1900-1940. Prerequisite: 01H:006 or 01H:073 or consent of instructor.

01H:172 Late Modern Art 3 s.h.
American and European art 1940-1970. Prerequisite: 01H:006 or 01H:073 or consent of instructor.

01H:173 Contemporary Art 3 s.h.
European and American painting and sculpture 1970 to present. Prerequisite: 01H:006 or 01H:073 or consent of instructor.

01H:174 Cubism and Futurism 3 s.h.
Survey of Cubism and Futurism; focus on painting and sculpture, related aspects of architecture, design. Prerequisite: 01H:006 or 01H:073 or consent of instructor.

01H:176 Dada and Surrealism 3 s.h.
Survey of Dada and Surrealism; focus on painting and sculpture; related developments in photography, other media. Prerequisite: 01H:006 or 01H:073 or consent of instructor.

01H:177 Abstract Expressionism 3 s.h.
Survey of American Abstract Expressionism and European Art Informel and Tachisme; focus on painting and sculpture; related developments in photography, other media. Prerequisite: 01H:006 or 01H:073 or consent of instructor.

01H:178 Pop Art 3 s.h.
Survey of Pop Art in America, Britain, Europe; focus on developments in painting and sculpture 1950 to early 1960s; continuing influence of Pop Art. Prerequisite: 01H:006 or 01H:073 or consent of instructor.

01H:179 Minimalism 3 s.h.
Survey of Minimalism; focus on developments in painting and sculpture during 1960s; continuing influence. Prerequisite: 01H:006 or 01H:073 or consent of instructor.

01H:180 Conceptual Art 3 s.h.
Survey of Conceptual Art as it developed 1960s to early 1970s; continuing influence. Prerequisite: 01H:006 or 01H:073 or consent of instructor.

01H:182 Art, Law, and Ethics 3 s.h.
How law and ethics apply to individuals and institutions concerned with the visual arts. Same as 024:161, 033:175, 091:192.

01H:183 History of Prints 3 s.h.
Printmaking as an important art form, influential carrier of styles and iconography from area to area; focus on Europe; history of prints from prehistoric times to present.

01H:184 History of Photography 3 s.h.
Survey of photography from 1839 to present. Prerequisite: 01H:006 or 01H:073 or consent of instructor.

01H:185 Modern Architecture 3 s.h.
Impact of new technology, artistic theory, and social practices on modern European and American architecture, 1850 to present. Prerequisite: 01H:006 or 01H:073 or 01H:084 or consent of instructor.

01H:186 Themes in Latin American Art 3 s.h.
Prerequisite: consent of instructor.

01H:190 Honors Research in Art History arr.
Research and preparation of thesis. Prerequisites: honors standing and consent of instructor.

01H:194 Readings in Art History arr.

01H:199 Topics in Art History 3 s.h.
Varied topics.

Art History—Primarily for Graduate Students

01H:200 History and Methods 3 s.h.
Critical thinking and research; readings in historical development of the discipline, from Renaissance to present, methodological paradigms and trends.

01H:230 Crossing Borders Seminar: Introductory 3-4 s.h.

01H:247 Crossing Borders Seminar 3-4 s.h.

01H:300 Directed Studies arr.

01H:302 M.A. Written Thesis arr.

01H:345 Seminar: Problems in Renaissance Art 3 s.h.
Major issues, methodologies. Repeatable. Prerequisite: consent of thesis supervisor.

01H:346 Seminar: Problems in Medieval Art 3 s.h.
Major issues, methodologies. Repeatable.

01H:347 Seminar in Modern/Contemporary Art 3 s.h.
Major issues, methodologies. Repeatable. Prerequisite: consent of instructor.

01H:360 Seminar: Nineteenth-Century French Art, Literature, and Culture 1-3 s.h.
Intersection of art and literature of 19th-century France in context of aesthetic, cultural, social, political transformations. Repeatable. Same as 009:241.

01H:385 Seminar in Architectural History 3 s.h.

01H:400 Ph.D. Readings arr.
Repeatable.

Repeatable.

Studio—for Undergraduates and Graduate Students

Courses numbered through 099 are primarily for undergraduates and are not repeatable for credit except where indicated. Some courses numbered 100-199 are repeatable. Courses 01A:003 Basic Drawing and 01A:004 Design Fundamentals are prerequisites for all studio courses for art majors.

Fundamentals

01A:003 Basic Drawing 3 s.h.
Two-dimensional visual language, media, space, form, color. Prerequisite: art major.

01A:004 Design Fundamentals 3 s.h.
Two- and three-dimensional concepts and their relations; working with basic drawing instruments; problems in visual arts; artists’ philosophies and techniques. Prerequisite: art major or consent of instructor.

01A:302 M.A. Written Thesis 1 s.h.
Prerequisite: consent of thesis supervisor.

01A:304 M.F.A. Written Thesis 1 s.h.
Prerequisite: consent of thesis supervisor.

Elements

01B:001 Elements of Art 3 s.h.
Drawing, composition, selected reading. GE: fine arts. Prerequisite: non-art major.

01B:101 Individual Instruction in Elements of Art arr.

Ceramics

Courses 01A:003 Basic Drawing and 01A:004 Design Fundamentals are prerequisites for all ceramics courses for art majors; 01B:001 Elements of Art is prerequisite for nonmajors.

01C:060 Ceramics I 3 s.h.
Basic handbuilding methods of forming, firing, glazing clay. GE: fine arts. Prerequisites: 01A:003 and 01A:004 for majors, 01B:001 for nonmajors.

01C:061 Ceramics II 3 s.h.
Basic wheel throwing techniques; clay, glaze formulation and preparation in kiln firing. Prerequisite: 01C:060 or equivalent.
Design
Courses 01A:003 Basic Drawing and 01A:004 Design Fundamentals are prerequisites for all design courses for art majors; 01B:001 Elements of Art is the prerequisite for nonmajors.

01D:021 Problems in Design I: Form and Structure 3 s.h.
Materials, their formal and structural possibilities. Offered fall semesters. Prerequisites: 01H:003 and 01A:004; and 01B:001 for nonmajors.

01D:022 Problems in Design II: Form and Function 3 s.h.
How objects are designed and structured; modeling, graphic skills necessary for basic project development. Offered spring semesters. Prerequisite: 01D:022.

01D:028 Graphic Design I 3 s.h.
Basic principles, techniques, and applications of graphic design, typography, composition, visual perception; creative, problem-solving aspects of graphic design. Prerequisites: 01A:003, 01A:004 and two art history courses.

01D:082 Introductory Computer Graphic Design 3 s.h.
Macintosh computer as creative tool for graphic design; computerized manipulation, organization of type and image; projects, demonstrations, discussions. Prerequisites: 01A:004 and 01D:028.

01D:110 Perspective and Shadow 3 s.h.
Theories of perspective, application of their basic principles to one-, two-, or three-point perspective scale drawings based on analytical specifications; principles of light, shadow; reflecting images. Offered summer sessions. Prerequisite: consent of instructor.

01D:125 Typography 3 s.h.
Principles and history; designing with type; functional, aesthetic dimensions of typography. Prerequisites: 01D:133 and consent of instructor.

01D:128 Computer Graphic Design 3 s.h.
Composition, manipulation, organization of image and type using Macintosh computer platform as a creative tool for graphic design; nature, uses, limitations of digital technology. Prerequisites: 01D:028 and 01D:082, or consent of instructor.

01D:133 Graphic Design II 3 s.h.
In-depth study and exploration of graphic design as creative and problem-solving tool of visual communication; translation of ideas and concepts into comprehensible visual language. Prerequisites: 01D:028 and consent of instructor.

01D:135 Graphic Design Workshop I 3 s.h.
Continuation of 01D:133; graphic design knowledge and skills applied to complex design problems such as visual identity, packaging, information design. Prerequisite: 01D:125.

01D:137 Environmental Design I 3 s.h.
Human interaction with the interior and exterior environment. Offered fall semesters of odd years. Prerequisites: 01D:021 and 01D:022, or equivalents; and consent of instructor. Same as 049:158.

01D:141 Interior Design I 3 s.h.
Relationship of interior space to its architecture, environment, human element, color, materials, furnishings, lighting, projects. Offered spring semesters. Prerequisites: 01D:021, 01D:022, and consent of instructor.

01D:175 Advanced Typography 3 s.h.
Continuation of 01D:125; advanced typographic problems. Prerequisite: 01D:125.

01D:190 Undergraduate Individual Instruction 1-3 s.h.
Individual instruction in design. Prerequisites: 01A:003, 01A:004, and consent of instructor.

01D:235 Graphic Design Workshop II arr.
Complex problems in graphic design; planning, development, organization of integrated design programs. Repeatable. Prerequisites: 01D:133, 01D:135, and consent of instructor.

01D:238 Environmental Design II 3 s.h.
Continuation of 01D:137. Repeatable. Prerequisite: 01D:137 and consent of instructor.

01D:240 Individual Instruction in Design arr.
Repeatable.

01D:242 Interior Design II 3 s.h.
Continuation of 01D:141. Repeatable. Offered fall semesters of even years. Prerequisites: 01D:141 and consent of instructor.

01D:249 Advanced Problems in Design 3 s.h.
Special topics and issues in design. Repeatable. Prerequisite: consent of instructor.

Drawing
Courses 01A:003 Basic Drawing and 01A:004 Design Fundamentals are prerequisites for all drawing courses for art majors; 01B:001 Elements of Art is prerequisite for nonmajors.

*All B.F.A. students in drawing and painting must take 01F:106. Offered fall semesters.

01F:007 Life Drawing I 3 s.h.
Observational drawing of form in its spatial contexts; drawing in varied media, figure as well as nondigital context. Prerequisites: 01A:003 and 01A:004; and 01B:001 for nonmajors.

01F:103 The Media of Drawing 3 s.h.
Varying drawing media; development of personal drawing concepts, content, direction. Prerequisites: 01F:007 or equivalent, and consent of instructor.

01F:105 Concepts in Drawing I 3 s.h.
Drawing from topics at the intermediate level; observation, idea, media, form, concept, beginnings of personal direction. Prerequisite: 01F:007. Same as 049:157.

01F:106 Undergraduate Seminar in Drawing and Painting 3 s.h.
Contemporary issues, practical and professional skills, interdisciplinary concerns, education and career goals. Offered fall semesters. Prerequisite: 01F:105.

01F:109 Concepts in Drawing II 4 s.h.
Drawing from topics at the advanced level. Repeatable. Prerequisite: 01F:105.

01F:190 Undergraduate Individual Instruction 1-3 s.h.
Individual instruction in drawing. Prerequisites: 01A:003, 01A:004, and consent of instructor.

01F:199 Special Topics in Drawing and Painting 3 s.h.
Advanced issues in drawing and painting. Prerequisite: 01F:105.

01F:201 Graduate Drawing 3 s.h.
Compositional and conceptual drawing as related to the student’s major interests; varied media. Repeatable. 6 s.h. of 01F:105 or equivalent, and consent of instructor.

01F:205 Individual Instruction in Drawing arr.
Repeatable.

Metalsmithing and Jewelry
Courses 01A:003 Basic Drawing and 01A:004 Design Fundamentals are prerequisites for all metalsmithing and jewelry courses for art majors; 01B:001 Elements of Art is prerequisite for nonmajors.

01G:084 Introduction to Jewelry and Metal Arts 3 s.h.
Basic metalworking techniques, including sheet metal fabrication, hammer forming, hydraulic die forming, soldering, riveting, repouse, etching, roll printing, anodizing, stone setting, patination, creation of jewelry, functional, and nonfunctional objects using metals, other materials. Prerequisite: 01G:084.

01G:185 Advanced Jewelry and Metal Arts 3 s.h.
Enameling, laser print transfer/resist, latex usage, gold plating, kumboo; production of pieces using 3D computer modeling, prototyping, other CNC industrial technologies, photo etching dropout processes; historical and current trends in crafts. Prerequisites: 01G:084 and 01G:185.

01G:187 Mixed Media Workshop 3 s.h.
Free exploration of all media and materials, including found objects; creation of conceptual and/or functional mixed media objects, jewelry, sculptures, installation pieces; pioneering use of new materials, development of new techniques, creation of diverse innovative art works. Recommended: 01G:185 and 01G:186.

01G:188 Metals Graduate Workshop 3 s.h.
Independent studio work; personal aesthetics, conceptual and technical skills developed and refined; creation of work without boundaries of media, portfolios, exhibitions, professional goals. Prerequisites: 01G:185, 01G:186, and 01G:187; or equivalents.

01J:090 or equivalent, and consent of instructor.

01J:140 Artists in the Community—Intermedia 3 s.h.
Visual practice/visual theory; projects, critiques, visiting artists and scholars. Prerequisite: consent of instructor.

01J:15 What is Storytelling For? 3 s.h.
Same as 033:115.

01J:201 Individual Instruction in Intermedia and Video Art 1-3 s.h.
Individual instruction in metalsmithing and jewelry. Prerequisites: 01A:003, 01A:004, and consent of instructor.

01J:240 Individual Instruction in Metamaterials and Jewelry arr.

Intermediate, Video Art
Courses 01A:003 Basic Drawing and 01A:004 Design Fundamentals are prerequisites for all intermediate and video art courses for art majors; 01B:001 Elements of Art is prerequisite for nonmajors.

01J:900 Intermediate I 3 s.h.
Interdisciplinary focus; emphasis on conceptual, environmental, video, performance art. Prerequisites: 01A:003 and 01A:004 for majors; 01B:001 for nonmajors.

01J:991 Intermediate II 3 s.h.
Interdisciplinary investigation of materials and concepts in relation to time-based arts of performance, video, environments; individual and collaborative projects. Prerequisite: 01J:900.

01J:105 Time-Based Media/Vide0 3 s.h.
Studio experimentation, individual projects. Prerequisites: 01J:900 or equivalent, and consent of instructor.

01J:106 Time-Based Media/Vide0 arr.
Continuation of 01J:105, which is prerequisite.

01J:110 Intermediate Workshop 3 s.h.
Visual practice/visual theory; projects, critiques, visiting artists and scholars. Prerequisite: consent of instructor.

01J:115 What is Storytelling For? 3 s.h.
Same as 033:115.

01J:140 Artists in the Community—Intermediate 3 s.h.
Student participation in internships at Iowa City/Corridor nonprofit organizations; interdisciplinary seminar. Prerequisite: consent of instructor.

01J:190 Undergraduate Individual Instruction 1-3 s.h.
Individual instruction in intermedi- and video art. Prerequisites: 01A:003, 01A:004, and consent of instructor.

01J:201 Individual Instruction in Intermedia and Video Art arr.
Repeatable.
Art and Art History • College of Liberal Arts and Sciences
Painting

01L:140 Digital Imaging

Courses 01A:003 Basic Drawing and 01A:004
Design Fundamentals are prerequisites for all
painting courses for art majors; 01B:001
Elements of Art is prerequisite for nonmajors.
01K:009 Painting I

3 s.h.

Varied image editing programs, with focus on Photoshop, Adobe
Illustrator, and the web.

01L:142 Introduction to 3D Computer Modeling

3 s.h.

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01M:152 Foil Imaging II

3 s.h.

Advanced aesthetic and technical research for creation of original
prints and other works of fine art using hot stamped foil and other
printmaking techniques; individual instruction. Prerequisites:
01M:151 or equivalent, and consent of instructor.

Same as 049:159.

01L:145 3D Computer Modeling Studio

3 s.h.

3 s.h.

Same as 049:162.

01M:160 Special Workshop in Printmaking

2-3 s.h.

Issues, themes, or studio practice. Prerequisite: consent of
instructor.

Emphasis on observational painting, theory and development of
pictorial ideas and skills. Prerequisite: 01F:007.

01L:155 Digital Worlds I: 2D Worlds

3 s.h.

01M:190 Undergraduate Individual Instruction

01K:010 Painting II

01L:165 4 x 5 Camera and Lighting

3 s.h.

Individual instruction in printmaking. Prerequisites: 01A:003,
01A:004, and consent of instructor.

3 s.h.

Materials, techniques, development of a personal painting
language through observation and imagination. Prerequisites:
01K:009 and consent of instructor.

Use of a 4 x 5 camera to correct perspective, depth of field; large
format printing, negative processes. Prerequisite: 01L:101.

01K:025 Life Painting

Individual instruction in photography. Prerequisites: 01A:003,
01A:004, and consent of instructor.

01L:190 Undergraduate Individual Instruction

3-4 s.h.

Emphasis on the figure and/or still life, and discussion.
Prerequisites: 01K:010 and consent of instructor.

01L:199 Digital Worlds II: Web Worlds

01K:046 Intermediate Painting

3 s.h.

Continued discussion of personal painting language developed
through contemporary issues. Prerequisites: 01K:009 and
01K:010, or equivalents; and consent of instructor.

01K:049 Advanced Painting

3 s.h.

Study of Baroque painting techniques combined with studio
practice; team-taught. Same as 01H:151.

1-3 s.h.

Individual instruction in painting. Prerequisites: 01A:003,
01A:004, and consent of instructor.

01K:199 Special Topics in Painting and Drawing

3 s.h.

Advanced issues in painting, drawing. Prerequisite: 01K:010.

01K:206 Graduate Painting: Topics

3 s.h.

Individual painting projects in desired medium; topics vary.
Prerequisite: consent of instructor. Corequisite: 01K:208.

01K:207 Graduate Drawing and Painting
Workshop

01L:231 Individual Instruction in Photography
01L:235 Digital Worlds III: 3D Worlds

3-4 s.h.

01K:151 Inside Baroque: History and Methods of
17th-Century European Painting

3 s.h.
arr.

Repeatable. Prerequisite: consent of instructor.

Individual projects as they aid the realization of a personal vision.
Prerequisite: 01K:046 or equivalent, and consent of instructor.

01K:190 Undergraduate Individual Instruction

1-3 s.h.

3 s.h.

01L:236 Graduate Photography Workshop

Repeatable. Prerequisite: consent of instructor.

Courses 01A:003 Basic Drawing and 01A:004
Design Fundamentals are prerequisites for all
printmaking courses for art majors; 01B:001
Elements of Art is prerequisite for nonmajors.
01M:021 Undergraduate Intaglio and Relief I

3 s.h.

Concepts, techniques; Renaissance and contemporary ideas,
methods; emphasis on metal plate printing, including etching,
drypoint, engraving, softground, aquatint. Prerequisites: 01A:003
and 01A:004 for majors; 01B:001 for nonmajors.

3 s.h.

3 s.h.

Camera, light meter, darkroom; history, theory of photography.
Prerequisites: 01A:003 and 01A:004 for majors; 01B:001 for
nonmajors.

01L:101 Intermediate Photography

3 s.h.

Photographic materials, development of personal vision.
Prerequisite: 01L:034 or equivalent.

01L:105 Advanced Photography

3 s.h.

Historical, technical, aesthetic aspects of unique nonmatrix
printed images as an approach to printmaking. Offered fall
semesters. Prerequisites: 01A:003, 01A:004, and 01F:007.

Courses 01A:003 Basic Drawing and 01A:004
Design Fundamentals are prerequisites for all
photography courses for art majors; 01B:001 is
prerequisite for nonmajors.
01L:034 Beginning Photography

3 s.h.

Fundamental techniques, characteristics of lithography; basic
direct drawing, processing, printing of stone and plate images in
black and white. Prerequisites: 01F:007 or equivalent, and
consent of instructor.

01M:041 Undergraduate Monotype

Photography

3 s.h.

01M:250 Individual Instruction in Printmaking

01M:042 Undergraduate Monoprint

01N:015 Undergraduate Sculpture I

01N:016 Undergraduate Sculpture II

01N:017 Sculpture III

01N:019 BFA Sculpture Workshop

01N:140 Topics in Sculpture

3 s.h.

01N:150 Figure Modeling

Exploration of the human form in clay on the live model, wire
armature, portrait modeling; human anatomy. Prerequisites:
01A:003, 01A:004, and 01N:015.

01M:122 Advanced Intaglio and Relief

01N:160 Mold Making

3 s.h.

Concepts and techniques of intaglio/relief; etching, engraving,
drypoint, softground, aquatint, woodcut, linocut, color printing;
emphasis on advanced methods, personal vision. Prerequisite:
01M:022 or equivalent.

01M:131 Lithography

3 s.h.

Technical, aesthetic characteristics; basic direct drawing,
processing, printing of stone and plate images in black and white.
Prerequisites: 01F:007 or equivalent, and consent of instructor.

01N:165 Casting in Hot Metal and Metal Forming

3 s.h.

Historical, technical, aesthetic aspects of unique non-matrix,
printed images. Offered fall semesters. Prerequisites: 01F:007 or
equivalent, and consent of instructor.

01L:134 Silkscreen

Photographic, nonphotographic stencil techniques for silkscreen
printing. Prerequisites: 01A:003 and 01A:004. Recommended:
01L:034.

Concepts, techniques in use of traditional and alternative
printmaking media to produce unique, matrix-generated prints.
Offered spring semesters. Prerequisites: 01M:022 or equivalent,
and consent of instructor.

01L:135 Offset Productions Workshop

01M:151 Foil Imaging I

01M:142 Monoprint

3 s.h.

3 s.h.

Participation in development of a new art form involving creation
of original prints and other works of art using hot stamped foil
and Iowa Foil Printer. Prerequisite: consent of instructor.

3 s.h.

Foundry work, wax working, mold making, and processes.
Prerequisites: 01A:003, 01A:004, 01N:015, and 01N:016.

01N:190 Undergraduate Individual Instruction

01N:264 Graduate Sculpture Workshop

3 s.h.

3 s.h.

All aspects of mold making—plaster, rubber, silicone; technical
preparation for 01N:165. Prerequisites: 01N:015, 01N:016, and
consent of instructor.

01M:141 Monotype

3 s.h.

3 s.h.

Concepts and techniques in using traditional and alternative
printmaking media to produce unique, matrix-generated prints.
Offered spring semesters. Prerequisite: 01M:022 or equivalent.

Concepts and techniques, from reading contemporary topics to
understanding and applying nontraditional photographic processes
and digital imaging. Prerequisites: 01L:101 and consent of
instructor.

Graphic arts techniques for producing postcards, broadsides, and
visual books via high-speed offset press. Prerequisites: 01L:101 or
equivalent, and consent of instructor.

3 s.h.

Projects, reading; specialized conceptual forms and issues in
contemporary sculpture, such as public art, installation.
Prerequisites: 01N:015, 01N:016, and consent of instructor.

01N:260 Individual Instruction in Sculpture

3 s.h.

3 s.h.

Prerequisites: 01N:015, 01N:016, 01N:017, and consent of
instructor.

Technical, aesthetic aspects; emphasis on color printing, indirect
image-forming and photo-mechanical processes. Prerequisites:
01M:131 or equivalent, and consent of instructor.

3 s.h.

3 s.h.

Transition from professor-driven assignments to independent
work; readings. Prerequisites: 01N:015 and 01N:016.

01L:125 Color Photography
01L:129 Materials and Techniques

3 s.h.

Continuation of 01N:015; form, materials, processes,
woodcarving, welding, concrete carving and direct application;
expanding concept development; contemporary sculptural
formats, collaborative process. Prerequisite: 01N:015.

01M:132 Advanced Lithography

Basic color printing procedures. Prerequisite: 01L:101.

3 s.h.

Basic sculptural concepts, processes, investigation of materials
such as plaster, clay, wood; emphasis on developing formal
language, acquiring basic skills; spatial, conceptual, technical
issues. GE: fine arts. Prerequisites: 01A:003 and 01A:004 for
majors; 01B:001 for nonmajors.

Individual projects; development of personal vision. Prerequisite:
01L:101.

3 s.h.

arr.

Repeatable.

Courses 01A:003 Basic Drawing and 01A:004
Design Fundamentals are prerequisites for all
sculpture courses for art majors; 01B:001
Elements of Art is prerequisite for nonmajors.

01M:031 Undergraduate Lithography

arr.

3 s.h.

Contemporary issues in lithography and focused development of
independent studio practice; special research projects. Repeatable.
Prerequisites: 01M:132 and consent of instructor.

Printmaking

01K:208 Graduate Drawing and Painting Forum

01K:215 Individual Instruction in Painting

01M:232 Graduate Lithography Workshop

Sculpture

Group and individual criticism, team-taught. Prerequisite: consent
of instructor. Corequisite: 01K:208.
Problems and issues of contemporary artists. Prerequisite: consent
of instructor.

3 s.h.

Concepts, techniques; etching, engraving, drypoint, softground,
aquatint, color printing, editioning, relief; emphasis on developing
personal vision. Repeatable. Prerequisite: consent of instructor.

arr.

Individual instruction, with emphasis on development of personal
visual language; woodcut, metal plate, color prints. Prerequisite:
01M:021 or equivalent.

1 s.h.

01M:222 Graduate Intaglio and Relief

Projects; group critiques; readings. Prerequisite: consent of
instructor.

01M:022 Undergraduate Intaglio and Relief II
3 s.h.

1-3 s.h.

1-3 s.h.

Individual instruction in sculpture. Prerequisites: 01A:003,
01A:004, and consent of instructor.

arr.

Repeatable.

3 s.h.

Critique seminar with readings for graduate sculptors and
nonsculpture graduate students. Repeatable. Prerequisite: consent
of instructor.

Interdepartmental Courses
01P:100 Interarea Topics

3 s.h.

Conceptual or media issues that cross traditional area disciplines;
team taught. Prerequisites: 01A:003 and 01A:004.

01P:134 Scene Design I
Introduction to design process; research, rendering, model
building. Same as 049:134.

3 s.h.


01F:100 Honors in Studio Art 6-3 s.h.
Research, preparation, and exhibition of an honors project in studio art. Prerequisite: consent of instructor.

Papermaking
01X:110 Papermaking 3 s.h.
History, fundamental techniques of Western, Eastern hand papermaking: projects in traditional sheet forming, basic paper chemistry, paper color. Offered fall semesters. Prerequisite: consent of instructor. Same as 018:110.
01X:120 Advanced Papermaking 3 s.h.
Traditional Eastern, Western sheet forming techniques, history, aesthetics; emphasis on fiber selection and preparation. Offered spring semesters. Prerequisite: consent of instructor. Same as 018:111.
01X:130 Paperworks 3 s.h.
Same as 018:130.
01X:210 Individual Instruction in Papermaking/Paperworks arr.
Repeatable. Prerequisites: 01X:120 and consent of instructor.

Bookbinding
01Y:150 Non-Adhesive Bookbinding 3 s.h.
Hands-on production of basic nonadhesive structures: history and terminology of bookbinding. Same as 018:150.
01Y:151 Bookbinding II 3 s.h.
Hands-on production of case-bound structures: basic tools and terminology. Same as 018:151.
01Y:152 Bookbinding III arr.
Sewing, covering, shaping techniques. Prerequisites: 01Y:150 or 01Y:151 or 018:150 or 018:151; and consent of instructor. Same as 018:152.
01Y:153 Studies in Bookbinding 3 s.h.
Topics related to hand bookbinding. Same as 018:153.
01Y:154 Artists’ Books 3 s.h.
Innovative binding structures, emphasis on nontraditional techniques. Same as 018:154.
01Y:156 Boxes and Enclosures 3 s.h.
Same as 018:156.
01Y:157 Moveable/Sculptural Books 3 s.h.
Same as 018:157.
01Y:158 Pop-up Book Structures 3 s.h.
Same as 018:158.
01Y:159 Book Materials and Techniques 3 s.h.
Same as 018:159.

Calligraphy
01Z:140 Calligraphy: Gothic Hands 3 s.h.
Introduction to the basic tool (broad-edged nib) disciplines and usage of calligraphy, using the Fraktur hand (a style of Gothic) as model; emphasis on proper practice methods. Same as 018:140.
01Z:141 Calligraphy: Expressive Forms 3 s.h.
Adaptation of traditional Western-style letterforms to contemporary formats; brush, broad-edge pen. Prerequisite: 01Z:140 or equivalent. Same as 018:141.
01Z:142 History of Western Letterforms 3 s.h.
Same as 018:142.
01Z:143 Calligraphy: Foundational Hands 3 s.h.
Fundamental calligraphic skills using Roman Majuscule, Humanistic Minuscule and Italic Basic layout and color theory, incorporated into letter practice. Same as 018:143.
01Z:144 Calligraphy: Italic and Script Hands 3 s.h.
Same as 018:144.
01Z:145 Studies in Calligraphy arr.
Same as 018:145.

Art Education—for Undergraduates and Graduate Students
01E:190 Undergraduate Individual Instruction 1-3 s.h.
Individual instruction in art education. Prerequisites: 01A:003; 01A:004, and consent of instructor.
01E:195 Methods and Material: Art for the Classroom Teacher 2 s.h.
Techniques, processes in art for teachers; studio projects. Same as 07E:122.
01E:196 Concepts in Art Education 3 s.h.
Overview; child, adolescent art; relationships with art, education; survey of literature; community art teaching experiences.
01E:198 Art Education Studio 2 s.h.
Art training related to processes of elementary, secondary school art teaching; studio methods applied to teaching children, adolescents. Prerequisite: 01E:196. Corequisite for those in the Teacher Education Program: 075:000.
01E:367 Seminar: Current Issues in Art Education 2-3 s.h.
Same as 075:367.
01E:406 Research in Art Education arr.

Bachelor of Arts
Requirements for the B.A. in Asian languages and literature range from 26 to 30 s.h., depending on the track. Transfer work is accepted to satisfy requirements of the major, but at least half of the semester hours of advanced work required for the major must be earned at The University of Iowa.

STUDENTS OF CHINESE
039:010-039:011 Second-Year Chinese: First-Second Semester 10 s.h.
039:105-039:106 Third-Year Chinese: First-Second Semester 10 s.h.
039:141 Chinese Literature: Poetry 3 s.h.
039:142 Chinese Literature: Prose 3 s.h.
039:180 Modern Chinese Writers 3 s.h.

STUDENTS OF HINDI
039:033-039:034 Second-Year Hindi: First-Second Semester 8 s.h.
039:184-039:185 Third-Year Hindi: First-Second Semester 6 s.h.
039:136 Indian Literature 3 s.h.
Additional advanced courses (100-level) in South Asian studies, including 1-3 s.h. of independent study 13 s.h.
A list of advanced courses is available from the department.
*Students may substitute 6 s.h. of 100-level courses in South Asian studies, with the approval of their major adviser.

STUDENTS OF JAPANESE
Advanced courses in Japanese literature taught by faculty members in the department 6 s.h.
Advanced courses in Japanese language or linguistics taught by a faculty member in the department 6 s.h.
Lists of advanced courses are available from the department.

STUDENTS OF SANSKRIT
039:023-039:024 Second-Year Sanskrit: First-Second Semester 6 s.h.
039:186-039:187 Third-Year Sanskrit: First-Second Semester 6 s.h.
039:136 Indian Literature 3 s.h.
039:163 Indian Religious Texts 3 s.h.
Additional advanced courses (100-level) in South Asian studies, including 1-3 s.h. of independent study 12 s.h.
A list of advanced courses is available from the department.
*Students may substitute 6 s.h. of 100-level courses in South Asian studies, with the approval of their major adviser.
Students of Sanskrit and Hindi are urged to fulfill the General Education Program requirement in
historical perspectives (3 s.h.) by completing 016:007 Civilizations of Asia: South Asia.

Four-Year Graduation Plan

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

Before the third semester begins: for students in Chinese and Japanese tracks, language work begun (students in the Hindi and Sanskrit tracks may begin language work in their sophomore year) and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: at least first-year language competency and at least one-half of the semester hours required for graduation

Before the seventh semester begins: at least second-year language competency and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: at least third-year, first-semester language competency and one additional course in the major (two additional courses in the Japanese track)

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

Honors

Students who maintain a cumulative University of Iowa g.p.a. of at least 3.33 are encouraged to enroll in the University Honors Program. With consent of the department chair and a faculty sponsor (an Asian specialist from any department), students register for 039:191 Honors Tutorial and 039:195 Senior Honors Thesis. To receive a B.A. with honors, students must complete an acceptable thesis based on original research.

Minor

A minor in Asian languages requires a minimum of 14-15 s.h. with a g.p.a. of at least 2.00. At least 12 s.h. must be taken at The University of Iowa in courses numbered 100 or above or considered advanced for the minor. Students may earn minors in Chinese, Hindi, Japanese, or Sanskrit.

CHINESE

The following courses numbered below 100 are considered advanced for the minor.

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<thead>
<tr>
<th>Course</th>
<th>Semester</th>
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<tr>
<td>039:010</td>
<td>First</td>
<td>5</td>
</tr>
<tr>
<td>039:011</td>
<td>Second</td>
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</tbody>
</table>

HINDI

Students of Hindi are permitted to complete the advanced course requirement with 11 s.h., and the minor with a total of 14 s.h.

The following courses numbered below 100 are considered advanced for the minor.

<table>
<thead>
<tr>
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<th>S.H.</th>
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<tbody>
<tr>
<td>039:011</td>
<td>First</td>
<td>4</td>
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<tr>
<td>039:012</td>
<td>Second</td>
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JAPANESE

The following courses numbered below 100 are considered advanced for the minor.

<table>
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<td>039:011</td>
<td>Second</td>
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</tbody>
</table>

One of the advanced courses must be chosen from literature or linguistics courses. A list of approved courses for the minor is available in the department.

SANSKRIT

The following courses numbered below 100 are considered advanced for the minor.

<table>
<thead>
<tr>
<th>Course</th>
<th>Semester</th>
<th>S.H.</th>
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<tbody>
<tr>
<td>039:021</td>
<td>First</td>
<td>4</td>
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<tr>
<td>039:022</td>
<td>Second</td>
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</tbody>
</table>

Certificate in International Business

Students of Chinese, Japanese, and Hindi may participate in a program leading to a Certificate in International Business, offered jointly by the Henry B. Tippie College of Business and the College of Liberal Arts and Sciences. A range of electives permits undergraduate students to tailor the program to their individual interests and to complement majors in the Tippie College of Business and the College of Liberal Arts and Sciences.

Teaching Licensure in Chinese and Japanese

Chinese and Japanese majors interested in licensure to teach in elementary and/or secondary schools must successfully complete the requirements for a major, or the equivalent, plus designated pedagogy and linguistics courses in the Department of Asian Languages and Literature. In addition, students must be admitted to the College of Education's foreign language teacher education program. Several courses in the College of Education are required, as is one semester of student teaching, taken in the senior year. Contact the College of Education's Division of Curriculum and Instruction for more information.

Language for Nonmajors

The department offers several opportunities for students who wish to study the languages of Asia and South Asia. Language study is available in Chinese, Hindi, Japanese, Korean, and Sanskrit.

Students who have had experience with Japanese should take the Japanese Foreign Language Placement Test, offered during summer orientation programs and at other times during the year by Evaluation and Examination Service. The test helps determine the level at which a student should begin Japanese language study at The University of Iowa. Students with backgrounds in Chinese, Hindi, Korean, or Sanskrit may receive individual evaluations from the department.

Foreign Language and General Education

Students may complete the foreign language component of the General Education Program with Chinese, Hindi, Japanese, Sanskrit, and Korean sequences offered by the department.

The Chinese sequence 039:008, 039:009, 039:010, and 039:011 completes the foreign language component of the General Education Program and is most appropriate for students who have had no Chinese. Students who know some Chinese as a family member, from high school, or from other study may wish to take 039:100 and 039:101 followed by 039:010 and 039:011, or 039:105 and 039:106. Additional course work is available, including classical Chinese and business Chinese.

The Hindi sequence 039:031, 039:032, 039:033, and 039:034 completes the foreign language component of the General Education Program. Additional courses are available for students who want to learn more.


The Sanskrit sequence 039:021, 039:022, 039:023, and 039:024 completes the foreign language component of the General Education Program. Additional courses are available.

The Korean sequence 039:040, 039:041, 039:042, and 039:043 leads to elementary/intermediate proficiency in Korean. Students who complete 039:043 Second-Year Korean: Second Semester may request recognition of their proficiency and complete the foreign language component of the General Education Program by contacting the College of Liberal Arts and Sciences Academic Programs and Services office.

Graduate Program

The graduate program in Asian civilizations prepares students for doctoral study in a variety of disciplines. It is also of interest to students with nonacademic career plans for whom graduate-level work in an Asian language and culture would be useful. Students in professional programs are encouraged to consider working concurrently toward a degree in Asian civilizations. Application materials are available
from the department, as is specific information on program tracks (Hindi language and literature; Sanskrit language and literature; South Asian studies; Chinese literature; Chinese linguistics; teaching Chinese as a foreign language; interdisciplinary Chinese studies; teaching Japanese as a foreign language; Japanese literature and culture; and interdisciplinary Japanese studies).

The Master of Arts in Asian Civilizations requires a minimum of 30 s.h. of approved course work, including 24 s.h. taken in residence at The University of Iowa. By the end of the first semester in residence, students propose a plan of study developed in consultation with their adviser and in accordance with guidelines for specializations within the program.

All students must maintain a g.p.a. of 3.00 or higher. Detailed information on degree requirements is sent to all applicants.

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

Admission

Applicants for graduate admission must meet the general admission requirements of the Graduate College, except that a g.p.a. of at least 2.75 is required for conditional admission, and at least 3.00 for regular admission. Applicants are required to submit a statement of purpose, a research paper written in English, three letters of recommendation, and GRE General Test scores. Applicants whose first language is not English must submit a TOEFL score of at least 590 on the paper-based test or 243 on the computer-based test.

Both international and U.S. graduate applications requesting financial support for the following academic year are due February 1. All other applications are accepted until April 15 for fall admissions and October 1 for spring admissions.

Financial Aid

Undergraduate and graduate students have access to the following financial aid and scholarship resources. Contact the department for application information.

Cheng/Liu Scholarship: Undergraduate and graduate students currently majoring in Chinese in the Department of Asian Languages and Literature at The University of Iowa may apply for the Cheng/Liu Scholarship. The $1,000 award can be used for summer Chinese language study.

Fairall Scholarship: Undergraduate or graduate majors who have attended and/or graduated from Iowa elementary or secondary schools may be nominated by the department to receive a Fairall Scholarship. Preference is given to Japanese studies students. Applications are available late spring, with scholarships to be awarded the following fall semester.

Foreign Language and Area Studies Fellowships: Only U.S. citizens are eligible. Graduate students combining work in Asian languages at an advanced level with interdisciplinary or professional programs may apply. The award is offered by International Programs for academic year and summer language study.

Graduate Assistantships: The department offers teaching assistantships and research assistantships for graduate students in the program. All applicants to graduate study in the program receive information on applying for an assistantship. Assistantships are awarded each spring for the following academic year.

Graduate International Research: Opportunities for funding research abroad include Stanley Fellowships for Graduate Student Research Abroad, CIREH Research Scholarships in International Health, Fulbright Grants, and Foreign Language Area Scholarships.

Summer Language Scholarships: Currently enrolled undergraduate and graduate students may compete for a Stanley-University of Iowa Foundation Support Organization Summer Language Scholarship, to be used for intensive summer language study in Chinese, Hindi, Japanese, or Sanskrit. Eight to ten awards of $2,000-$2,500 are made each summer. Applications are due March 1.

Undergraduate Study Abroad: Opportunities for undergraduates to study abroad include the Presidential Scholarships for Study Abroad and the Stanley Scholarships for International Research and Study.

Special Programs and Activities

Summer and Study Abroad Programs

The department strongly urges its students to seek opportunities for summer language study and study abroad in order to accelerate the process of language acquisition. The University’s memberships in the American Institute of Indian Studies and the China Cooperative Language and Study Programs consortium help facilitate students’ access to quality international programs in India and China. The government of the Republic of China offers scholarships for two students to live and study in Taiwan each year. The UI-Nanzan Exchange allows Iowa students to pay Iowa tuition, room, and board while attending the Center for Japanese Studies at Nanzan University in Nagoya, Japan. There also is a cooperative agreement with the Landour Language School in the Himalayan foothills of India. The South Asian Studies Program has launched a new study abroad program in Mysores and Bangalore, India, where students have the opportunity to study a variety of aspects of traditional and modern Indian civilization. Many students participate in summer, semester-long, and year-long study abroad programs in India, China, and Japan offered through other U.S. universities. In many cases credit is transferable, and it is possible for a student to study abroad and still complete a four-year graduation plan. There are many resources available for funding research and study abroad. It also may be possible for students to apply University of Iowa financial aid to their study abroad programs.

Internships

Students are encouraged to enrich their programs of study through internships designed to combine work experience in Asia or the United States with study or research projects. The University’s Career Center keeps a list of internships.

Student Associations

Students have many opportunities to enrich their studies in Asian languages and literature while living in Iowa City. The University sponsors student associations for students from many Asian countries, including mainland China, Japan, Korea, India, Pakistan, and Taiwan. All University of Iowa students are welcome to join. Various international community groups sponsor cultural events and holiday celebrations throughout the year.

The International Crossroads Community, located in Hillcrest Residence Hall, includes Japanese House, a local point for activities among resident and nonresident students and the Japanese Student Association. The house’s activities include weekly dinners.

Library Facilities

Since 1960 the Main Library has routinely acquired the most American titles in Asian studies and selected overseas scholarly publications in English and other Western languages. The library’s Asian collection includes approximately 80,000 volumes in Asian languages and about 140,000 Western-language volumes on Asian subjects. Since 1975, the University has been a member of the Library of Congress Foreign Currency Exchange Program for Indian books and periodicals. The library’s nonprint media collection includes a growing number of Asian feature films. A Chinese-Japanese-Korean computer terminal gives students and faculty access to the growing Research Libraries Information Network database in Asian languages.

Courses

Language for Undergraduates

Chinese

309:001 Conversational Chinese I 1 s.h.
Introduction to modern Chinese, with focus on communication skills for discussing oneself, family, daily activities, interests, personal preferences, food, shopping, travel, lodging, situational activities and performance.

309:002 Conversational Chinese II 1 s.h.
Continuation of 309:001, with focus on speaking and listening.
Asian Languages and Literature • College of Liberal Arts and Sciences

039:008 First-Year Chinese: First Semester 5 s.h. Sound system of Mandarin Chinese, basic sentence patterns, aural understanding, speaking, reading, writing, same content as 039:115. Offered fall semesters. GE: foreign language. Prerequisite: undergraduate standing.

039:009 First-Year Chinese: Second Semester 5 s.h. Continuation of 039:008; same content as 039:116. Offered spring semesters. GE: foreign language. Prerequisite: undergraduate standing.

039:010 Second-Year Chinese: First Semester 4 s.h. Emphasis on conversation, reading of folktales and modern short stories; same content as 039:117. Offered fall semesters. GE: foreign language. Prerequisite: undergraduate standing.

039:011 Second-Year Chinese: Second Semester 5 s.h. Continuation of 039:010; same content as 039:118. Offered spring semesters. Prerequisites: undergraduate standing and 039:010.

039:100 Advanced First-Year Chinese: First Semester 5 s.h. Continuation of 039:100. GE: foreign language. Offered spring semesters. Prerequisites: 039:100 and consent of instructor.


039:102 Classical Chinese: First Semester 3 s.h. Late Zhou period; readings from Zhanguoce, Mengzi, Zhuangzi.

039:103 Classical Chinese: Second Semester 3 s.h. Modern Chinese; focus on reading, writing; skill development in reading authentic texts related to topics of student interest. Prerequisite: 039:102.

039:104 Classical Chinese: First Semester 3 s.h. Continuation of 039:104. Offered spring semesters. Prerequisite: 039:103.

039:105 Third-Year Chinese: First Semester 5 s.h. Reading of advanced modern Chinese texts; speaking, writing. GE: foreign language. Offered fall semesters. Prerequisites: 039:011 or 039:118.

039:106 Third-Year Chinese: Second Semester 5 s.h. Continuation of 039:105. Offered spring semesters. Prerequisite: 039:105.


039:120 Classical Chinese: Second Semester 3 s.h. Continuation of 039:119. Offered spring semesters. Prerequisite: 039:118.

039:121 Fourth-Year Chinese: First Semester 3 s.h. Modern Chinese; focus on reading, writing, related religious/philosophical texts; same content as 039:113. Offered spring semesters of even years. GE: foreign language. Prerequisites: undergraduate standing and 039:120.

039:122 Fourth-Year Chinese: Second Semester 3 s.h. Continuation of 039:121. Offered spring semesters. Prerequisite: 039:121.

039:130 Business Chinese 3 s.h. Offered spring semesters. Prerequisite: 039:128.

039:132 Fifth-Year Chinese: Second Semester 3 s.h. Modern Chinese, emphasis on communication skills. Offered fall semesters. Prerequisites: 039:100 and 039:108.

039:184 Third-Year Hindi: First Semester 3 s.h. Advanced level Hindi texts; speaking, writing. Offered fall semesters. Prerequisites: 039:034 or 039:127.

039:185 Third-Year Hindi: Second Semester 3 s.h. Continuation of 039:184. Offered spring semesters. Prerequisite: 039:184.


039:008 First-Year Japanese: First Semester 5 s.h. Modern Japanese; same content as 039:115. Offered fall semesters. GE: foreign language. Prerequisite: undergraduate standing.

039:009 First-Year Japanese: Second Semester 5 s.h. Continuation of 039:008, same content as 039:116. Offered spring semesters. GE: foreign language. Prerequisite: undergraduate standing and 039:008.

039:010 Second-Year Japanese: First Semester 5 s.h. Continuation of 039:009, same content as 039:117. Offered fall semesters. GE: foreign language. Prerequisites: undergraduate standing and 039:009.

039:011 Second-Year Japanese: Second Semester 5 s.h. Continuation of 039:010; same content as 039:118. Offered spring semesters. Prerequisites: undergraduate standing and 039:010.


039:014 Third-Year Japanese: Reading and Writing I 3 s.h. Modern Japanese; focus on reading, writing. Offered fall semesters. Prerequisite: 039:111. Recommended: concurrent registration in 39J:105.


039:016 Fifth-Year Japanese: First Semester 3 s.h. Modern Japanese; emphasis on communication skills. Offered fall semesters. Prerequisites: 039:100 and 039:108.

039:017 Fifth-Year Japanese: Second Semester 3 s.h. Continuation of 039:121. Offered spring semesters. Prerequisite: 039:121.

039:018 Fifth-Year Japanese: First Semester 3 s.h. Improvement of Japanese for academic and professional purposes. Offered fall semesters. Prerequisites: 039:121 or consent of instructor.

039:019 Fifth-Year Japanese: Second Semester 3 s.h. Continuation of 039:131. Offered spring semesters.

039:021 First-Year Sanskrit: First Semester 4 s.h. Grammar, basic vocabulary; elementary readings; same content as 039:180. Offered fall semesters of even years. GE: foreign language. Prerequisite: undergraduate standing.

039:022 First-Year Sanskrit: Second Semester 4 s.h. Readings in epic and story literature; same content as 039:111. Offered spring semesters of odd years. GE: foreign language. Prerequisites: undergraduate standing and 039:021.

039:023 Second-Year Sanskrit: First Semester 3 s.h. Readings in epic and puranic texts; same content as 039:112. Offered fall semesters of odd years. GE: foreign language. Prerequisites: undergraduate standing, and 039:022 or consent of instructor.

039:024 Second-Year Sanskrit: Second Semester 3 s.h. The Bhagavadgita and related religious/philosophical texts; same content as 039:113. Offered spring semesters of even years. GE: foreign language. Prerequisites: undergraduate standing, and 039:103 or consent of instructor.

039:186 Third-Year Hindi: First Semester 3 s.h. Offered spring semesters. Prerequisite: 039:106.


Korean

039:040 First-Year Korean: First Semester 4 s.h. Modern Korean, speaking, listening, reading, writing. Offered fall semesters.

039:041 First-Year Korean: Second Semester 4 s.h. Continuation of 039:040. Offered spring semesters. Prerequisite: 039:040.

039:042 Second-Year Korean: First Semester 4 s.h. Continuation of 039:041; conversation and readings in intermediate Korean language; Korean culture. Prerequisite: 039:041.

039:043 Second-Year Korean: Second Semester 4 s.h. Continuation of 039:042, which is prerequisite.

Persian

Persian (Farsi) is the most widely spoken of the Iranian branch of the Indo-Iranian languages, a subfamily of the Indo-European languages. Persian is the language of Iran and the official language of the Republic of Tajikistan and Afghanistan.

039:045 Introduction to Persian 4 s.h. Introduction to colloquial Persian (Farsi), some basic reading and writing. Offered through Saturday & Evening Classes.

039:046 Introduction to Persian II 4 s.h. Colloquial Persian (Farsi) with emphasis on basic reading and writing. Prerequisite: 039:045.

039:047 Intermediate Persian I 4 s.h. Listening, reading, speaking, and writing skills; reading of simplified literary texts about Persian reading, speaking, and writing skills. Prerequisite: 039:046.

Language for Graduate Students

Chinese

039:115 Beginning Chinese for Graduate Students I 4-5 s.h. Sound system of Mandarin Chinese, basic sentence patterns, aural understanding, speaking, reading, writing, same content as 039:008. Offered fall semesters. Prerequisite: graduate standing.

039:116 Beginning Chinese for Graduate Students II 4-5 s.h. Continuation of 039:115; same content as 039:009. Offered spring semesters. Prerequisites: graduate standing, and 039:008 or 039:115.

039:117 Beginner Chinese for Graduate Students III 4-5 s.h. Continuation of 039:116; same content as 039:110. Offered fall semesters. Prerequisites: graduate standing, and 039:009 or 039:116.
Beginning Sanskrit for Graduate Students I

Sanskrit

101:110 Beginning Sanskrit for Graduate Students I 4 s.h.
Grammar; basic vocabulary; elementary readings; same content as 039:021. Offered fall semesters. Prerequisite: graduate standing.

101:111 Beginning Sanskrit for Graduate Students II 4 s.h.
Readings in epic and story literature; same content as 039:022. Offered spring semesters. Prerequisites: graduate standing, and 039:021 or 039:110.

101:112 Beginning Sanskrit for Graduate Students III 3 s.h.
Readings in epic and puranic texts; same content as 039:023. Offered fall semesters. Prerequisites: graduate standing, and 039:022 or 039:111.

101:113 Beginning Sanskrit for Graduate Students IV 3 s.h.
The Bhagavadgita and related religious/philosophical texts; same content as 039:024. Offered spring semesters. Prerequisites: graduate standing, and 039:023 or 039:112.

For Undergraduates and Graduate Students

Literature

039:090 First-Year Seminar 1-2 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

039:075 Asian Religious Classics 3 s.h.
Same as 032:075.

039:130 Workshop in Japanese Literary Translation 3 s.h.
Workshop in translation from Japanese to English, with emphasis on literary translation; issues in theory and practice of translation; special features of Japanese as a source language for translation. Prerequisite: 039:097 or equivalent.

039:136 Indian Literature 3 s.h.
Readings from medieval and modern periods in English translation. Same as 032:177.

039:140 The Literature of Duosim 3 s.h.
Texts of philosophical, religious Daoism; Daoism in traditional Chinese political theory, literature, the arts, alchemy and medicine, sexual custom, combat. Taught in English. Same as 032:186.

039:141 Chinese Literature: Poetry 3 s.h.
Readings in classical and modern Chinese poetry in English translation. Same as 048:141.

039:142 Chinese Literature: Modern 3 s.h.
From seventh century to early modern times. Same as 048:143.

039:120 Chinese Painting I 3 s.h.
Topics in cross-cultural study based in Asian/Euro-American contexts; meditation, performance, readings, visits to research facilities. Prerequisite: 039:011 or consent of instructor.

039:165 Chinese Painting II 3 s.h.
Close reading in English of Murasaki Shikibu’s Tale of Genji; literary and social contexts; last reception. Same as 039:144.

039:146 Warriors Dreams 3 s.h.
Imagery of the warrior in traditional Japanese literature, from the eighth century to the modern period. Same as 039:147.

039:158 East-West Literary Relatings 3 s.h.
Topics in cross-cultural study based in Asian/Euro-American literary and film texts. Same as 048:158.

039:171 Modern Chinese Literature 3 s.h.
Readings for advanced modern Chinese learners to elevate reading and writing abilities; essays, fiction, poetry by contemporary Chinese writers. Taught in Chinese. Same as 048:169.

039:180 Modern Chinese Writers 3 s.h.
Readings from fiction, in English translation.

039:182 Asian-American Literature 3 s.h.
Immigration history, ethnic identities, contemporary American culture as represented in literary texts and films by Asian-Americans. Same as 048:182.

039:184 Religious Themes in Japanese Literature 3 s.h.
Same as 032:184.

039:192 East Meets West: A Cross-Cultural Course 
Overview of cross-cultural perceptions in modern period based on films, literary and philosophical texts from East and West. Same as 048:192.

039:193 Asian Literature Today 3 s.h.
Repeatable. Same as 048:193.

039:240 Seminar in Chinese Fiction 3 s.h.
Novels, novellas, 16th to 18th centuries (Ming and Qing periods). Prerequisite: ability to read original texts.

039:241 Seminar in Chinese Literature 1 s.h.
Prerequisites: two years of modern Chinese and one year of classical Chinese, or equivalents. Same as 048:441.

039:244 Seminar: Modern Chinese Literature and Cinema 3 s.h.
Role played by cinematic icons and topologies in the discourse of modernity in China. Repeatable.

039:245 Seminar in Japanese Literature 3 s.h.
Repeatable. Prerequisites: three years of Japanese and consent of major.

039:251 Readings in Modern Japanese 3 s.h.
Readings in modern Japanese. Repeatable. Prerequisite: consent of instructor.

039:252 Readings in Japanese Literary Texts 3 s.h.
Reading, translation of classical or modern works. Repeatable. Prerequisites: 039:119 or 039:251, and consent of instructor.

Civilization

Instruction is in English.

039:006 Introduction to Buddhism 3 s.h.
Same as 032:006.

039:015 Introduction to Chinese Culture 3 s.h.
Key aspects of traditional and modern Chinese culture as insights into the Chinese experience and worldview; development of the Chinese language and writing system, calligraphy and brush painting, cultural geography, urban life, martial arts, mainstream popular culture, music, cuisine.

039:016 Asian Art and Culture 3 s.h.
GE: fine arts or foreign civilization and culture or historical perspectives. Same as 016:016.

039:018 Asian Humanities: India 3 s.h.
Introduction to four thousand years of South Asian civilization. GE: foreign civilization and culture or humanities. Same as 032:008.

039:019 Asian Humanities: China 3 s.h.
Literary and philosophical texts of China in English translation. GE: foreign civilization and culture or humanities. Same as 032:009.

039:029 Asian Humanities: Japan 3 s.h.
Literary texts, related arts of premodern Japan. GE: foreign civilization and culture or humanities. Same as 032:007.

039:084 Introduction to the Art of China 3 s.h.
Same as 016:031.

039:094 Introduction to the Art of Japan 3 s.h.
Same as 016:033.

039:095 Japan: Culture and Communication 3 s.h.

039:055 Civilizations of Asia: China 3 s.h.
GE: foreign civilization and culture or historical perspectives. Same as 016:005.

039:056 Civilizations of Asia: Japan 3 s.h.
GE: foreign civilization and culture or historical perspectives. Same as 016:006.

039:057 Civilizations of Asia: South Asia 3 s.h.
Pre-modern and modern topics in history, art, religion, philosophy, politics, and culture of India, nearby states. GE: foreign civilization and culture or historical perspectives. Same as 016:007.

039:064 Living Religions of the East 3 s.h.
GE: foreign civilization and culture or historical perspectives. Same as 032:004.

039:120 Chinese Painting I 3 s.h.
Same as 016:120.

039:121 Chinese Painting II 3 s.h.
Same as 016:121.

039:122 Language/Politics of Culture in South Asia 3 s.h.
Same as 113:129.

039:123 Japanese Painting 3 s.h.
Same as 016:123.
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39J:125 Japanese Society and Culture 3 s.h.
GE: foreign civilization and culture. Same as 113:125.

39J:126 Japanese Ethics: Narrative and Performance 3 s.h.
Investigation of Japanese social relationships, attitudes, perceptions as expressed through literature and film; focus on dramatic changes resulting from rapid urban-industrialization in recent decades. Same as 113:126.

309:131 Themes in Asian Art History 3 s.h.
Prerequisite: 039:016 or 01H:016 or equivalent or consent of instructor. Same as 01H:124.

309:132 Vietnam War in Historical Perspective 3 s.h.
Same as 16W:182.

309:134 Imperialism and Modern India 3 s.h.
GE: foreign civilization and culture. Same as 16W:194.

309:145 Topics in Asian Cinema 3 s.h.
Films from mainland China, Taiwan, South Asia. Same as 008:127, 048:106.

309:151 Japanese Film History 3 s.h.
From silent period to present.

309:152 Topics in Japanese Cinema 3 s.h.
Issues, periods, or directors in Japanese film.

309:154 Modern China 1600s to 1920s 3 s.h.
GE: foreign civilization and culture. Same as 16W:196.

39J:155 Contemporary Japanese Culture 3 s.h.
Cultural texts and practices in contemporary Japan: literature, film, television, manga.

39J:156 Japanese Art and Culture 3 s.h.
Same as 01H:122.

309:157 Chinese Calligraphy 2 s.h.
Brushwork, ink technique.

309:159 Chinese Art and Culture 3 s.h.
Same as 01H:119.

309:160 Goddesses in India 3 s.h.
Three thousand years of sacred literature and practice: important and characteristic feminine divine beings who inhabit the religious universe of South Asia. Same as 032:160.

309:163 Indian Religious Texts 3 s.h.
Religious, philosophical works of ancient and medieval India in English translation. Same as 032:171.

309:170 Zen Buddhism 3 s.h.
Same as 032:188.

309:172 Comparative Ritual 3 s.h.
Same as 032:172.

309:172 Japan—Age of the Samurai 3 s.h.
Same as 16W:172.

309:173 Modern Japan 3 s.h.
Political, social, cultural history from mid-19th century. Same as 032:173.

309:175 Topics in Asian History 3 s.h.
Same as 16W:178.

309:175 Japan and the United States in Peace and War 3 s.h.
Same as 16W:175.

309:176 South Asia Social Science History 3 s.h.
Historical origins of key social science topics in South Asia: caste, population, gender differences, the environment. Same as 16W:189.

309:176 Japanese History in Cinema 3 s.h.
Same as 16W:176.

309:178 Government and Politics of the Far East 3 s.h.
GE: foreign civilization and culture. Same as 030:143.

309:187 Monks, Merchants, and Samurai 3 s.h.
Same as 032:167, 16W:177.

309:188 East Meets West: The Western Reception of Eastern Religion 3 s.h.
Introduction of religious ideas and forms from India, China, and Japan into Europe and America from the earliest period to the late 20th century, from the Greeks to the New Age. Same as 032:178.

309:189 Topics in Chinese Cinema 3 s.h.
Contemporary films in Chinese language, chosen by region, history, director, or genre.

309:190 Chinese Culture in Era of Globalization 3 s.h.
Contemporary Chinese popular culture, including acting, film, drama, painting, music and literature, in the context of globalization; readings from theoretical works on globalization.

309:194 Asia News Seminar 2-3 s.h.
Same as 16W:199.

309:196 China since 1927 3 s.h.
Same as 16W:198.

309:197 Gender in Chinese Literature and Culture 3 s.h.
Gender issues as represented in literary and other cultural texts. Same as 131:197.

309:198 Topics in Asian Studies 3 s.h.
Topics vary.

309:209 Research in Japanese Studies 3 s.h.
Research methods in Japanese studies, location, evaluation, use of print and electronic resources for reference, topical research. Prerequisite: consent of instructor.

309:235 Seminar: Chinese Religions 3 s.h.
Same as 032:235.

309:236 Religion in Ancient India 3 s.h.
Upanisads, including Brhadaranyaka and Chandogya; early literature on yoga, with focus on ideas of self, god, structure of cosmos, nature of transcendence. Same as 032:236.

309:237 Seminar: East Asian Religion 3 s.h.
Emphasis on China and/or Japan. Same as 032:237.

309:240 Seminar in Japanese Cinema 3 s.h.
Study of theoretical, historical problems in Japanese cinema studies. Repeatable. Prerequisite: consent of instructor.

309:250 South Asian Research Seminar arr.

309:254 Seminar: Modern Chinese History 3 s.h.
Repeatable. Same as 016:291.

309:255 Seminar: Problems in Asian Art 2-3 s.h.
Repeatable. Same as 01H:316.

309:257 Readings: Japanese History 3 s.h.
Repeatable. Same as 016:294.

309:258 Readings in Chinese History arr.
Repeatable. Same as 016:292.

309:304 Special Topics in Asian Cinema 3 s.h.
Repeatable. Same as 048:304.

Linguistics and Pedagogy

39J:103 Language in Japanese Society 3 s.h.
Aspects of the Japanese language that reflect culture, social structures of Japan; communication styles and strategies, cross-cultural communication, language in media, metaphors.

39J:124 Introduction to Japanese Linguistics 3 s.h.
Phonology, morphology, syntax, semantics, pragmatics, enhanced understanding of basic structural features of the Japanese language. Prerequisites: 039:008, 039:009, and 039:010.

39J:139 Chinese Historical Phonology 3 s.h.
Phonology of Mandarin, other major Chinese dialect groups; reconstruction of the sound system of Middle and Old Chinese. Same as 103:139.

39J:144 Introduction to Chinese Linguistics 3 s.h.
Aspects of modern Chinese linguistics, such as Chinese phonology, syntax, pedagogical grammar, history of the language. Taught in English. Same as 103:144.

309:177 Second Language Classroom Learning 3 s.h.
Same as 07E:183, 07S:183.

309:181 Translation Workshop arr.
Same as 048:181.

309:200 Second Language Acquisition Research/Theory I 3 s.h.

39J:200 Japanese Linguistics 3 s.h.
Japanese language as linguistic system; basic linguistic terminology; sound systems, grammar, meanings, usages. Prerequisite: 39J:124 or consent of instructor.

309:201 Second Language Acquisition Research/Theory II 3 s.h.

39J:201 Second Language Acquisition Research/Theory I 3 s.h.

309:202 Teaching Chinese as a Foreign Language I: Theories and Research 3 s.h.
Research, theory on acquisition of Chinese as a non-native language.

39J:202 Japanese as a Foreign Language: Practical Applications 3 s.h.
Instructional methodology, curriculum, and material design; hands-on experience. Prerequisite: 39J:122 or consent of instructor.

309:203 Teaching Chinese as a Foreign Language II: Curriculum, Methodology, and Assessment 3 s.h.
Multiple levels of major Chinese textbooks, curricular organizational schemes, language programs, communicative language instruction, development of supplementary materials for a University of Iowa Chinese course.

309:205 Analysis of L1 and L2 Data 3 s.h.
Same as 164:205.

309:207 Sociolinguistics 3 s.h.
Prerequisite: introductory linguistics course. Same as 164:207.

309:223 Topics in Second Language Acquisition: Listening 3 s.h.
Same as 164:223.

309:234 Principles of Teaching and Learning Foreign Languages 3 s.h.
Prerequisite: consent of instructor. Same as 009:234, 013:221, 041:234.

309:239 Seminar in Japanese Linguistics: Historical Phonology 3 s.h.

Topics in applied linguistics and language pedagogy related to Japanese language.

309:240 Analysis of Japanese Discourse 3 s.h.
Methodological frameworks for analyzing discourse; linguistic structures examined in actual contexts of their use.

309:250 Analysis of Japanese Linguistics 3 s.h.
Opportunities for in-depth analysis of specific linguistic areas. Repeatable. Prerequisite: 39J:200 or 103:100.

309:258 Second Language Acquisition of Japanese 3 s.h.
Theoretical foundation of Japanese as a second or foreign language, topics in second- or foreign-language acquisition of Japanese. Prerequisites: 07E:183, 39J:200, and 103:100.

Individual Study for Advanced Students

309:191 Honors Tutorial arr.

309:195 Senior Honors Thesis arr.

309:199 Asian Studies arr.

Research, translation projects. Repeatable. Prerequisites: 39J:120, or equivalent, and consent of instructor.

Repeatable.

309:216 Individual Sanskrit for Advanced Students arr.
Research, translation projects. Repeatable. Prerequisites: fourth-year proficiency and consent of instructor.
### Undergraduate Programs

Study in the biological sciences prepares students for work in a wide variety of fields in educational institutions, government agencies, foundations, health care organizations, and businesses. Undergraduate programs prepare students for entry into research or service careers associated with private industry or government programs, and for primary and secondary teaching. They also prepare students for entry into advanced degree programs leading to careers in higher education and to independent research in a variety of biological fields, or for practice in health professions such as medicine, dentistry, pharmacy, nursing, veterinary medicine, medical technology, and physical therapy.

The B.S. and B.A. programs include a core curriculum consisting of the two-semester course 002:010-002:011 Principles of Biology I-II, 002:128 Fundamental Genetics, and 002:131 Evolution. Beyond the core, the B.S. and B.A. programs provide highly diverse content. They prepare students for varied career opportunities in the biological sciences.

Each program includes a total of 18 courses (63-70 s.h.) in biology, chemistry, physics, and mathematics. All course work prepares students for advanced graduate and professional training in biology and related subjects.

The department offers 002:196 Honors Investigations and 002:199 Introduction to Research to acquaint undergraduate students with the nature of practicing scientists’ work. Students associate with one of the department’s research groups in experiments, discussion of current research, study of specialized topics, and attendance at research seminars. Admission to the University Honors Program is required for 002:196; 002:199 is open to all students who are accepted by a faculty sponsor in the Department of Biological Sciences.

Students interested in field biology, zoology, or botany may take varied courses in these subjects offered during the summer at the Iowa Lakeside Laboratory, at Lake Okoboji. Students who wish to count course work done at another institution toward requirements for a biology degree at Iowa should consult with their biological sciences advisers.

### Bachelor of Science in Biology

The Bachelor of Science in biology is divided into six tracks that emphasize the most dynamic and active areas in the biological sciences: cell and developmental biology, genetics and biotechnology, evolution, neuroscience, physiology and molecular biology of plants, and comprehensive biology. Students who pursue the B.S. must complete requirements in the chemistry-physics-mathematics foundation, the biology core, and one of the six tracks.

#### CHEMISTRY-PHYSICS-MATHMATICS FOUNDATION

| All of these: |
| 004:011-004:012 Principles of Chemistry I-II | 8 s.h. |
| 004:121 Organic Chemistry I | 3 s.h. |
| One of these sequences: |
| 029:011-029:012 College Physics | 8 s.h. |
| 029:081-029:082 Introductory Physics I-II | 8 s.h. |
| One of these: |
| 22M:016 Calculus for the Biological Sciences | 4 s.h. |
| 22M:021 Calculus and Modeling I | 4 s.h. |
| 22M:025 Calculus I | 4 s.h. |
| 22M:031 Engineering Mathematics I: Single Variable Calculus | 4 s.h. |
| One of these: |
| 22S:030 Statistical Methods and Computing | 3 s.h. |
| 22S:101 Biostatistics | 3 s.h. |

#### BIOLOGY CORE

| 002:010-002:011 Principles of Biology I-II | 8 s.h. |
| 002:128 Fundamental Genetics | 4 s.h. |
| 002:131 Evolution | 4 s.h. |

#### Tracks for the Bachelor of Science

Students pursuing the B.S. must select a single track. Each track includes seven courses. Students who choose 002:196 Honors Investigations to fulfill a track requirement must complete a minimum of 0 s.h. in that course. Honors Investigations may be used to fulfill the elective requirement only in a single category in each track. If it is used to fulfill the investigative laboratory requirement, it cannot also be used to fulfill the elective requirement; if it is used to fulfill the elective requirement, it cannot also be used to fulfill the investigative laboratory requirement.

#### CELL AND DEVELOPMENTAL BIOLOGY TRACK

The cell and developmental biology track provides educational background suitable for graduate study in molecular, cellular, and developmental biology and for entry-level positions in laboratories and companies engaged in cancer research and related endeavors. It also provides strong preparation for professional study in medicine and other health-related subjects.

**Group 1 (Developmental Biology)**

| Both of these: |
| 002:104 Introduction to Developmental Biology | 3 s.h. |
| 002:117 Plant Developmental Biology | 3 s.h. |

**Group 2 (Biochemistry)**

| One of these: |
| 002:123 Plant Biochemistry | 3 s.h. |
| 009:110 Biochemistry | 3 s.h. |
| 009:120 & 099:130 Biochemistry and Molecular Biology I-II | 6 s.h. |

**Group 3 (Cellular Biology)**

| One of these: |
| 002:114 Cell Biology | 3 s.h. |
| 002:155 Cell Physiology | 4 s.h. |

**Group 4 (Investigative Laboratory)**

| One of these: |
| 002:133 Cell Biology Lab | 3 s.h. |
| 002:138 Genetics and Biotechnology Lab | 3 s.h. |
| 002:196 Honors Investigations (in cell/developmental biology) | 6 s.h. |

**Group 5 (Electives)**

At least two courses, which may include any combination of courses or a course sequence from Groups 3 and/or 4 that have not been used to satisfy those requirements, and/or courses from the following list:

| 002:150 Endocrinology | 3 s.h. |
| 002:168 Genes and Development | 3 s.h. |
| 002:171 Molecular Genetics | 4 s.h. |
| 002:180 Fundamental Neuroscience | 4 s.h. |
| 061:147 Survey of Immunology | 4 s.h. |
| 061:157 General Microbiology | 5 s.h. |

#### EVOLUTION TRACK

The evolution track provides educational background suitable for graduate study in evolutionary biology or related disciplines and for entry-level positions in laboratories utilizing population genetics or phylogenetic approaches (e.g., forensics, fisheries).

**Group 1 (Evolution Core)**

| All of these: |
| 002:134 Ecology | 4 s.h. |
| 002:160 Molecular Phylogenetics | 3 s.h. |
| 002:162 Population Genetics and Molecular Evolution | 3 s.h. |

**Group 2 (Biochemistry)**

| One of these: |
| 002:123 Plant Biochemistry | 3 s.h. |
| 009:110 Biochemistry | 3 s.h. |
099:120 and 099:130 Biochemistry and Molecular Biology I-II 6 s.h.

Group 3 (Investigative Lab)
One of these:
- 002:116 Field Ecology 4 s.h.
- 002:138 Genetics and Biotechnology Lab 3 s.h.
- 002:196 Honors Investigations (in evolution) 6 s.h.

Group 4 (Electives)
At least two courses, which may include any combination of courses or a course sequence from Group 3 that has not been used to satisfy the Group 3 requirement, and/or courses from the following list:
- 002:100 Plant Diversity and Evolution 4 s.h.
- 002:103 Biogeography 3 s.h.
- 002:104 Introduction to Developmental Biology 3 s.h.
or
- 002:117 Plant Developmental Biology 3 s.h.
- 002:119 Plant-Animal Interactions 3 s.h.
- 002:136 Science and Application of Conservation Principles 4 s.h.
- 002:140 Systematics 3 s.h.
- 002:143 Animal Behavior 4 s.h.
- 002:168 Genes and Development 3 s.h.
or
- 002:169 Introduction to Bioinformatics 4 s.h.
- 002:170 Bioinformatics 3 s.h.
- 22C:016 Computer Science I 4 s.h.
- 22S:120 Probability and Statistics 4 s.h.
- 113:170 Primate Evolutionary Biology 3 s.h.

GENETICS AND BIOTECHNOLOGY TRACK
The genetics and biotechnology track provides educational background suitable for graduate study in molecular biology, biotechnology, genetic counseling, and other areas of genetics and for entry-level positions in genetic engineering and biotechnology companies. It also provides strong preparation for professional study in medicine and other health-related fields.

Group 1 (Genetics Core)
One of these:
- 002:169 Introduction to Bioinformatics 4 s.h.
- 002:170 Bioinformatics 3 s.h.
Both of these:
- 002:171 Molecular Genetics 4 s.h.
- 061:170 Microbial Genetics 3 s.h.

Group 2 (Biochemistry)
One of these:
- 002:123 Plant Biochemistry 3 s.h.
- 099:110 Biochemistry 3 s.h.
- 099:120 & 099:130 Biochemistry and Molecular Biology I-II 6 s.h.

Group 3 (Investigative Laboratory)
One of these:
- 002:138 Genetics and Biotechnology Lab 3 s.h.
- 002:196 Honors Investigations (in genetics/biotechnology) 6 s.h.

Group 4 (Electives)
At least two courses; may include 099:130 if 099:120 and 099:130 are chosen from Group 2, and/or the course or course sequence from Group 3 that has not been used to satisfy the Group 3 requirement, and/or courses from the following list:
- 002:104 Introduction to Developmental Biology 3 s.h.
or
- 002:117 Plant Developmental Biology 3 s.h.
- 002:133 Cell Biology Lab 3 s.h.
- 002:168 Genes and Development 3 s.h.
- 061:147 Survey of Immunology 4 s.h.

NEUROSCIENCE TRACK
The neuroscience track provides educational background suitable for graduate study in neurobiology and neurophysiology and for entry-level positions in laboratories studying the therapeutic basis of neurological disorders and in pharmaceutical companies. It also provides strong preparation for professional study in medicine and other health-related disciplines.

Group 1 (Neuroscience Core)
All of these:
- 002:124 Animal Physiology 3 s.h.
- 002:143 Animal Behavior 4 s.h.
- 002:180 Fundamental Neuroscience 4 s.h.

Group 2 (Biochemistry)
One of these:
- 099:110 Biochemistry 3 s.h.
- 099:120 & 099:130 Biochemistry and Molecular Biology I-II 6 s.h.

Group 3 (Investigative Laboratory)
One of these:
- 002:133 Cell Biology Lab 3 s.h.
- 002:138 Genetics and Biotechnology Lab 3 s.h.
- 002:196 Honors Investigations (in neuroscience) 6 s.h.
- 031:177 Field Methods: Animal Behavior Research 3 s.h.

Group 4 (Electives)
At least two courses, which may include any combination of a course or course sequence from Group 3 that have not been used to satisfy the Group 3 requirement, and/or courses from the following list:
- 002:114 Cell Biology 3 s.h.
or
- 002:155 Cell Physiology 4 s.h.
- 002:100 Plant Diversity and Evolution 4 s.h.
- 002:113 Ecological Plant Anatomy 4 s.h.
- 002:171 Molecular Genetics 4 s.h.

COMPREHENSIVE BIOLOGY TRACK
The Comprehensive Biology track is designed for students who wish a balanced introduction to the major fields of biology. It provides educational background suitable for entry into graduate programs in the biological sciences, for science education, and for entry-level positions in research in laboratories in many fields of biology. It also provides broad-based preparation for professional study in medicine and other health-related careers.

Group 1 (Biochemistry)
One of these:
- 002:123 Plant Biochemistry 3 s.h.
- 099:110 Biochemistry 3 s.h.
- 099:120 & 099:130 Biochemistry and Molecular Biology I-II 6 s.h.

Group 2 (Molecular Biology)
At least one of these:
- 002:114 Cell Biology 3 s.h.
or
- 002:155 Cell Physiology 4 s.h.
- 002:180 Fundamental Neuroscience 4 s.h.

Group 3 (Cellular Biology)
At least one of these:
- 002:114 Cell Biology 3 s.h.
or
- 002:155 Cell Physiology 4 s.h.
- 002:180 Fundamental Neuroscience 4 s.h.

Group 4 (Developmental Biology)
At least one of these:
- 002:104 Introduction to Developmental Biology 3 s.h.
- 002:117 Plant Developmental Biology 3 s.h.

Group 5 (Organismal Physiology)
At least one of these:
- 002:110 Plant Physiology 3 s.h.
- 002:124 Animal Physiology 3 s.h.
- 002:150 Endocrinology 3 s.h.
G-inch>Group 6 (Population Biology)
At least one of these:
- 002:110 Plant Diversity and Evolution 4 s.h.
- 002:134 Ecology 4 s.h.
- 002:140 Systematics 3 s.h.

G-inch>Group 7 (Investigative Laboratory)
At least one of these:
- 002:116 Field Ecology 4 s.h.
- 002:133 Cell Biology Lab 3 s.h.
- 002:136 Science and Application of Conservation Principles 4 s.h.
- 002:138 Genetics and Biotechnology Lab 3 s.h.
- 002:196 Honors Investigations 6 s.h.
- 031:177 Field Methods: Animal Behavior Research 3 s.h.

G-inch>Suggested First-Year Schedule
The following first-year schedule of science courses is recommended for students seeking either the B.S. or B.A. degree in biology:

G-inch>First Semester
- 004:011 Principles of Chemistry I 4 s.h.
- Calculus or mathematics leading to calculus 3-4 s.h.

G-inch>Second Semester
- 004:012 Principles of Chemistry II 4 s.h.
- 002:010 Principles of Biology I 4 s.h.
- Calculus (if not taken during the first semester) 4 s.h.

G-inch>Bachelor of Arts in Biology
The Bachelor of Arts in biology features a combination of directed breadth and student choice. Students who pursue the B.A. must complete a chemistry-physics-mathematics foundation; a biology core identical to that required for the B.S.; one course in each of three breadth menus; one course with a laboratory; and three elective courses, which may include one course in the history or philosophy of science. The B.A. provides educational background suitable for admission into graduate programs in the biological sciences and for science education and entry-level positions in laboratory and field research. It also provides preparation for professional study in medicine and other health-related subjects.

G-inch>Chemistry-Physics-Mathematics Foundation
All of these:
- 004:011 004:012 Principles of Chemistry I-II 8 s.h.
- 004:121 Organic Chemistry I 3 s.h.
- 099:110 Biochemistry 3 s.h.

One of these:
- 002:123 Plant Biochemistry 3 s.h.
- 004:122 Organic Chemistry II 3 s.h.
- 099:110 Biochemistry 3 s.h.

One of these sequences:
- 029:011 029:012 College Physics (students consult their advisors) 8 s.h.
- 029:081 029:082 Introductory Physics I-II 8 s.h.

One of these:
- 22M:016 Calculus for the Biological Sciences 4 s.h.
- 22M:021 Calculus and Modeling I 4 s.h.
- 22M:025 Calculus I 4 s.h.

- One of these:
  - 22S:030 Statistical Methods and Computing 3 s.h.
  - 22S:101 Biostatistics 3 s.h.

G-inch>Biological Core
- 002:010 002:011 Principles of Biology I-II 8 s.h.
- 002:128 Fundamental Genetics 4 s.h.
- 002:131 Evolution 4 s.h.

G-inch>Breadth Menus
At least one course from each of the following three breadth menus:

G-inch>Molecular and Cellular Biology
- 002:114 Cell Biology 3 s.h.
- 002:127 Introduction to Plant Molecular Biology 3 s.h.
- 002:155 Cell Physiology 4 s.h.
- 002:171 Molecular Genetics 4 s.h.

G-inch>Developmental Biology and Physiology
- 002:104 Introduction to Developmental Biology 3 s.h.
- 002:110 Plant Physiology 3 s.h.
- 002:117 Plant Developmental Biology 3 s.h.
- 002:124 Animal Physiology 3 s.h.
- 002:130 Endocrinology 3 s.h.
- 002:180 Fundamental Neuroscience 4 s.h.

G-inch>Ecology and Evolutionary Biology
- 002:100 Plant Diversity and Evolution 4 s.h.
- 002:103 Biogeography 3 s.h.
- 002:134 Ecology 4 s.h.
- 002:140 Systematics 3 s.h.

G-inch>Course with a Laboratory
One of these (must not have been used as a breadth menu course):
- 002:100 Plant Diversity and Evolution 4 s.h.
- 002:107 Invertebrate Biology 4 s.h.
- 002:108 Vertebrate Zoology 4 s.h.
- 002:113 Ecological Plant Anatomy 4 s.h.
- 002:116 Field Ecology 4 s.h.
- 002:133 Cell Biology Laboratory 3 s.h.
- 002:136 Science and Application of Conservation Principles 4 s.h.
- 002:138 Genetics and Biotechnology Laboratory 3 s.h.

G-inch>Electives
At least three courses, which may include any course chosen from a breadth menu or from the list of courses with a laboratory that has not been used to satisfy those requirements, any other 2-4 s.h. course numbered 100 or above offered by the department of biological sciences, any approved advanced biology course taught at the Iowa Lakeside Laboratory (students consult their advisors), and/or any course(s) chosen from the following list:

- 002:121 Principles of Paleontology 3 s.h.
- 002:122 Evolution of the Vertebrates 3 s.h.
- 027:155 Skeletal Muscle Biology 3 s.h.
- 061:147 Survey of Immunology 4 s.h.
- 113:170 Primate Evolutionary Biology 3 s.h.
- 113:188 Primate Behavior and Ecology 3 s.h.

One of the electives may be chosen from these:
- 016:136/152:136 History of Medicine in Western Society 3 s.h.
- 16E:139 Ancient and Medieval Science 3 s.h.
- 16W:137/152:137 History of Public Health 3 s.h.
- 16W:138/152:138 History of International Health 3 s.h.
- 026:104 Introduction to Philosophy of Science 3 s.h.

In addition, students who have passed 004:121, 004:122, and 099:110 may use 099:110 as a biology elective.

G-inch>Suggested First-Year Schedule
See “Bachelor of Science in Biology.”

G-inch>Four-Year Graduation Plan
The following checklists the minimum requirements students must complete by certain semesters in order to stay on the University’s Four-Year Graduation Plan. “Courses in the major” are those required to complete the major, exclusive of courses in the chemistry-physics-mathematics foundation.

G-inch>B.S. in Biology
Before the third semester begins: math through calculus I, 004:011 and 004:012, 002:010, and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: the courses listed above, plus 002:011, 004:121, 22S:030 or 22S:101, two other courses in the major, and at least one-half of the semester hours required for graduation

Before the seventh semester begins: the courses listed above, 029:011 and 029:012 or equivalents, plus five or six more courses in the major, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: the courses listed above, plus two or three more courses in the major

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

G-inch>B.A. in Biology
Before the third semester begins: math through calculus I, 004:011 and 004:012, 002:010, and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: the courses listed above, 002:011, 004:121, 22S:030 or 22S:101, three other courses in the major, and at
The investigative laboratory requirement in an appropriate track. Students pursuing the B.A. in biology may apply 6 s.h. of 002:196 Honors Investigations toward the elective laboratory course requirement and count the 2 s.h. earned in 002:198 Honors Seminar in Biology toward the elective requirement.

Biology majors interested in pursuing an honors degree should contact the biology honors advisor as early as possible, preferably in the sophomore or junior year, so that they may be matched with an appropriate lab.

**Minor in Biology**

Students majoring in other subjects may earn a minor in biology. The minor requires 15 s.h. of credit in biology, at least 12 of which must be in 100-level courses. All of the 100-level courses must be offered by the Department of Biological Sciences at The University of Iowa, or they must be approved 100-level courses offered at Iowa Lakeside Laboratory. Students must earn a g.p.a. of at least 2.00 in 100-level courses. Biological sciences courses taken on a pass/nonpass basis do not apply toward the biology minor. Biological sciences courses taken at other institutions, except Iowa Lakeside Laboratory, do not apply to the 100-level course requirement in the biology minor.

**Graduate Programs**

All members of the biological sciences faculty engage in research that addresses fundamental questions in the biological sciences. Areas of departmental research include cell and developmental biology, evolutionary biology and ecology, genetics and biotechnology, neurobiology, and plant physiology and molecular biology.

Graduate programs in biological sciences are designed to train scientists in the principles and practice of biological research in preparation for positions in education, industry, or government. The Doctor of Philosophy program primarily prepares students to become principal investigators of independent research projects and to hold faculty positions at colleges and universities. Students who complete their academic training with the Master of Science are prepared to participate in research and/or teach at the community college or secondary school level.

On admission, each new graduate student is assigned a temporary adviser, who guides the student through initial requirements and acts as his or her advocate. Before registration, new graduate students meet with their temporary advisers to discuss their educational background and to formulate a study plan for the first year. Students may be advised to take specific course work to enhance their background in certain areas. During the first year, students must make up any undergraduate deficiencies in chemistry, genetics, mathematics, and physics. A student with a bachelor's degree outside the biological sciences may request modification of certain area requirements; the Graduate Affairs Committee evaluates students' transcripts and advises them on the most appropriate program of courses. After the first year, responsibility for evaluation is shared by the dissertation committee and the Graduate Affairs Committee.
Doctor of Philosophy in Biology

The department expects new Ph.D. candidates to do research in three laboratories on a rotating basis during their first year. Students consult with their temporary advisors and with prospective faculty research advisers before identifying their preferences for rotations. Students are assigned to laboratories through a matching process.

During the first year, students are required to enroll in the department’s colloquium, which is based on a weekly Friday seminar series. In the second semester, the colloquium includes a discussion component based on the research described in the seminars. During the first two years, students also are required to enroll in at least two seminar courses that have a significant writing component and in two advanced lecture courses. In each subsequent year, students also must enroll in a seminar/writing course. Additional formal course work and proficiency requirements for each Ph.D. student are determined by the dissertation committee on the basis of the student’s background and current and prospective research interests. The dissertation committee also determines what portion of the formal course or proficiency requirements the student must complete before the comprehensive examination. In this examination, students must demonstrate knowledge of biology fundamentals and the analytic and synthetic skills necessary to become creative, independent scientists. Once they complete the course work and proficiency requirements and pass the comprehensive examination, students may be admitted to full candidacy for the Ph.D.

Students also must demonstrate teaching skills by assisting in instruction as teaching assistants for at least two semesters.

The program culminates in students’ preparation of a dissertation based on original, independent research. Students must pass a final examination that covers the thesis and its specialized field before the Ph.D. is awarded.

Financial Support

All graduate students making satisfactory progress towards the Ph.D. receive stipend and full tuition support from fellowships or teaching assistantships. Research assistantships also are available through individual research grants, administered by faculty members, or by the University. First-year Ph.D. students are supported by department fellowships during the research rotation period.

Admission

Application materials for the graduate program must be sent both to the University’s Office of Admissions and to the Department of Biological Sciences graduate admissions committee. Complete instructions are listed on the application form, which is available from the department. Applicants should have official transcripts from each undergraduate and graduate institution they have attended sent to both the Office of Admissions and the Department of Biological Sciences. They also should arrange to have official scores from the Graduate Record Examination (GRE) General Test (verbal, quantitative, and analytical writing) sent to both offices. A valid B.S. or B.A. degree from an accredited institution is required.

International applicants are required to take the Test of English as a Foreign Language (TOEFL) and arrange to have official scores sent to the Office of Admissions. International students who received their degrees (either bachelor’s or master’s) from a U.S. institution are exempt from this requirement. All international students whose native language is not English are required to take an English proficiency exam when they first enroll for classes.

Successful applicants for graduate admission usually have a g.p.a. of at least 3.00 and a Graduate Record Examination (GRE) General Test (combined verbal and quantitative) score higher than 1200. These criteria serve as general guidelines to the admissions committee, which also considers applicants’ letters of recommendation, research experience, and other appropriate criteria.

Although not required, it is recommended that applicants take the Graduate Record Examination advanced biology test and submit their scores. Although most applicants have completed undergraduate programs in biology, the department also considers applicants with backgrounds in biophysics, botany, biochemistry, molecular biology, microbiology, and other related areas. Applications should be submitted by February 1 and must include the GRE test scores. In order to meet the application deadline, applicants must take the GRE in October or earlier. Late applications are considered as placement and funding permit.

Students applying for admission to the M.S. with thesis program in biology should have a bachelor’s degree in one of the biological sciences. Students with bachelor’s degrees in other areas may need to register as nondegree students (A9 or G9) and make up the equivalent of the department’s bachelor’s degree program prior to consideration for admission. Nondegree students must complete chemistry, physics, and calculus requirements in addition to the biology courses listed in the undergraduate program. Nondegree students should consult the department’s graduate program administrator before applying for admission.

The M.S. degree without thesis is an exit degree. Students are not permitted to enter as graduate students with this degree objective.

For more information, visit the department’s web site.

International Students

Admission of international students is based on the GRE General Test, the Test of English as a Foreign Language (TOEFL)—a score of at least 570 on the paper-based test or at least 230 on the computer-based test, and evaluation of the applicant’s transcript(s), letters of recommendation, and research experience.

Facilities

The department is housed in three contiguous buildings, with modern facilities and equipment for state-of-the-art research. A new research and teaching building was completed in spring 2000, and extensive renovation of the preexisting facilities was completed in spring 2004.

Specialized departmental facilities include:

The Roy J. Carver Center for Comparative Genomics, which houses the department’s DNA sequencing, quantitative PCR, and informatics facilities.

A well-staffed microscopy and imaging facility, including access to a newly established confocal microscopy laboratory.

Two large greenhouses for use in plant research and education.

The department houses animal-care facilities suitable for mice, rats, rabbits, and zebra fish. These facilities are managed by the University’s animal care unit, which is accredited by the Association for Assessment and Accreditation of Laboratory Animal Care. A central University facility provides assistance in the preparation of transgenic mice. The department is also the home of the National Institute of Health-affiliated Developmental Studies Hybridoma Bank, which collects and distributes monoclonal antibodies that originate in laboratories all over the world. The collection now contains more than 550 monoclonal antibodies that are distributed to users internationally for a modest fee.

In addition to department facilities, campuswide facilities include a DNA oligonucleotide synthesis and enzyme lab, oligopeptide synthesis and sequencing equipment, and mass- and NMR spectroscopy facilities. A hybridoma facility creates fusions and provides researchers with monoclonal antibodies. A campus fermentation lab grows large amounts of microorganisms (e.g., 100 liters) for use in protein isolation.

Iowa Lakeside Laboratory

Advanced courses in biology at Iowa Lakeside Laboratory are accepted for elective credit in the biology major—for the B.A. and the physiology and molecular biology of plants track in the B.S.—and in the minor. The laboratory, located on West Lake Okoboji in northwestern Iowa, affords excellent conditions for summer study in field biology, limnology, physiology, aquatic ecology, polllination biology, and plant taxonomy. See “Iowa Lakeside Laboratory” in the University Courses section of the Catalog.

Courses

Many courses include field and/or laboratory components.
002:174 Computational Genomics 3 s.h.
Same as 051:122, 055:122, 127:173.

002:180 Fundamental Neuroscience 4 s.h.

002:181 Neurophysiology 3-4 s.h.
Physiological properties of nerve cells, nervous systems; axonal conduction, synaptic transmission, sensory transduction, integrative processes, higher functions. Prerequisites: 22M:025 or equivalent, and 029:012; or consent of instructor. Same as 132:181.

002:185 Neurobiology of Learning and Memory 2 s.h.
Prerequisite: consent of instructor.

002:190 Topics in Evolution 2 s.h.
Eukaryotic gene and genome composition, organization, and evolution. Prerequisite: 002:128 or consent of instructor.

002:191 Topics in Molecular Genetics 1-2 s.h.
Prerequisite: 002:128 or a basic genetics course or graduate standing.

002:192 Basic Biology of Human Disease 2 s.h.
Prerequisites: 002:128 and consent of instructor.

002:193 Topics in Cell Motility 1-3 s.h.
Prerequisites: 002:104 or equivalent, or graduate standing; and consent of instructor.

002:194 Topics in Cell and Development 1-2 s.h.
Prerequisite: consent of instructor.

002:195 Topics in Neurobiology 1-2 s.h.
Topics vary. Prerequisite: consent of instructor.

002:196 Honors Investigations arr.
Experimental and theoretical research, readings in biological sciences. Prerequisites: honors standing and consent of instructor.

002:197 Topics in Plant Molecular Biology 1-2 s.h.
Prerequisite: consent of instructor.

002:198 Honors Seminar in Biology 2 s.h.
Prerequisite: honors standing.

002:199 Introduction to Research 3 s.h.
Prerequisite: consent of instructor.

Undergraduate Programs

Bachelor of Science

Present and projected demand for chemists with a Bachelor of Science is excellent in research and in control and process-development work. The B.S. program also provides all the prerequisites for graduate work in chemistry or biochemistry.

The Bachelor of Science requires 66 s.h., of which 46 must be earned in chemistry courses. Of these, at least 9 s.h. must be earned in chemistry courses at The University of Iowa. The following courses are required.

Chemistry

One of these sequences: 004:011-004:012 Principles of Chemistry I-II 8 s.h.

One of these: 004:018-004:019-004:020 Chemical Science I-II and Chemical Science Laboratory 8 s.h.

One of these: 004:121-004:122 Organic Chemistry I-II 6 s.h.
004:123-004:124 Organic Chemistry I-II for Majors (preferred) 6 s.h.

One of these: 004:141 Organic Chemistry Laboratory 3 s.h.
004:142 Organic Chemistry Laboratory for Majors (preferred) 3 s.h.

All of these: 004:021 Basic Measurement 3 s.h.
004:111-004:112 Analytical Chemistry I-II 6 s.h.
004:125 Inorganic Chemistry 2 s.h.
004:131-004:132 Physical Chemistry I-II 6 s.h.
004:143 Analytical Measurements 3 s.h.
004:144 Physical Measurements 3 s.h.
004:153 Inorganic Chemistry Laboratory 3 s.h.
004:170 Advanced Inorganic Chemistry 3 s.h.

Integral Calculus

One of these sequences: 22M:021-22M:022 Calculus and Modeling I-II 8 s.h.
22M:025-22M:026 Calculus I-II 8 s.h.


Introductory Physics

One of these sequences: 029:011-029:012 College Physics (accepted) 8 s.h.
029:081-029:082 Introductory Physics I-II (preferred) 8 s.h.

Credit earned in advanced science elective courses and in 004:162 Undergraduate Research must total at least 6 s.h. Advanced science electives may be chosen in the areas of chemistry, mathematics, computer science, astronomy, physics, engineering, radiology biology, biochemistry, microbiology, pharmacology, pharmacy, biological sciences, geoscience, or physiology.

Bachelor of Arts

The B.A. curriculum in chemistry provides a general education with some concentration in fundamental chemistry but with a wider choice of electives than the B.S. curriculum includes. Advanced courses in chemistry, biological sciences, mathematics, physics, or other scientific areas are recommended.

The Bachelor of Arts requires 51 s.h., of which 37 must be earned in chemistry courses. At least 6 s.h. must be earned in chemistry courses at The University of Iowa.

Students who elect this program may qualify to be high school teachers, provided they meet teacher licensure requirements. By choosing appropriate electives, students can meet entrance requirements for chemistry, biochemistry, medicine, dentistry, or other graduate or professional programs while satisfying the B.A. requirements in chemistry.

The major course requirements for the B.A. are as follows.

Chemistry

One of these sequences: 004:011-004:012 Principles of Chemistry I-II 8 s.h.
004:018-004:019-004:020 Chemical Science I-II and Chemical Science Laboratory 8 s.h.

One of these: 004:121-004:122 Organic Chemistry I-II 6 s.h.
004:123-004:124 Organic Chemistry I-II for Majors (preferred) 6 s.h.

One of these: 004:141 Organic Chemistry Laboratory 3 s.h.
004:142 Organic Chemistry Laboratory for Majors (preferred) 3 s.h.

All of these: 004:021 Basic Measurement 3 s.h.
004:111-004:112 Analytical Chemistry I-II 6 s.h.
004:125 Inorganic Chemistry 2 s.h.
004:131-004:132 Physical Chemistry I-II 6 s.h.
004:143 Analytical Measurements 3 s.h.
004:144 Physical Measurements 3 s.h.
004:153 Inorganic Chemistry Laboratory 3 s.h.
004:170 Advanced Inorganic Chemistry 3 s.h.

Integral Calculus

One of these sequences: 22M:021-22M:022 Calculus and Modeling I-II 8 s.h.
22M:025-22M:026 Calculus I-II 8 s.h.

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Integral Calculus
One of these sequences:
22M:021-22M:022 Calculus and
Modeling I-II
8 s.h.
22M:025-22M:026 Calculus I-II
8 s.h.
22M:031-22M:032 Engineering
Mathematics I-II: Single Variable and
and Multivariable Calculus
8 s.h.

Introductory Physics
One of these sequences:
029:011-029:012 College Physics
[accepted]
8 s.h.
029:081-029:082 Introductory Physics
I-II (preferred)
8 s.h.

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

Bachelor of Arts
Before the third semester begins: math through calculus I, 004:011 and 004:012 or
004:018, 004:019, and 004:020 or equivalent
course work, and at least one-quarter of the
semester hours required for graduation
Before the fifth semester begins: the courses
listed above, calculus II, organic chemistry I and
II, physics I and II, and at least one-half of the
semester hours required for graduation
Before the seventh semester begins: the
courses listed above, four more courses in the
major, and at least three-quarters of the semester
hours required for graduation
Before the eighth semester begins: the
courses listed above, and one or two more
courses in the major
During the eighth semester: enrollment in all
remaining course work in the major, all
remaining General Education courses, and a
sufficient number of semester hours to graduate

Bachelor of Science
Before the third semester begins: math
through calculus I, 004:011 and 004:012 or
004:018, 004:019, and 004:020 or equivalent
course work, and at least one-quarter of the
semester hours required for graduation
Before the fifth semester begins: the courses
listed above, calculus II, physics I and II, organic
chemistry I and II, three other courses in the
major, and at least one-half of the semester hours
required for graduation
Before the seventh semester begins: the
courses listed above, six more courses in the
major, and at least three-quarters of the semester
hours required for graduation
Before the eighth semester begins: the
courses listed above, and three more courses in the
major
During the eighth semester: enrollment in all
remaining course work in the major, all
remaining General Education courses, and a
sufficient number of semester hours to graduate

Honors
To graduate with honors in chemistry, a student
must be a member of the University Honors
Program, which requires students to maintain a
cumulative University of Iowa g.p.a. of at least
3.33 (contact the University Honors Program for
more information). Honors students in chemistry
must take 004:162 Undergraduate Research,
complete a research project acceptable to his or
her research adviser, and write an honors thesis
based on that research. Students are encouraged,
but not required, to present their research at
local and regional meetings and to publish their
results in professional journals.

Minor
The minimum requirements for a minor in
chemistry are 15 s.h., including 3 s.h. in
introductory-level courses and 12 s.h. taken at
The University of Iowa in advanced chemistry
courses numbered 100 and above; 004:011 and
004:012 Principles of Chemistry I-II, 004:018,
004:019, and 004:020 Chemical Science I-II and
Chemical Science Laboratory, or their equivalents
are prerequisites for upper-level courses in
chemistry.

Teaching Licensure
Chemistry courses required for the B.S. or B.A.
satisfy the major requirements for teaching in
secondary schools. A minor in chemistry satisfies
the requirements for a teaching emphasis in
chemistry (see “Science Education” in the
Catalog).

Special Opportunities for Undergraduates
The department offers undergraduates—majors
and other students interested in chemistry—a
number of programs and opportunities to enrich
their classroom studies.

Undergraduate Chemistry Center
The Chemistry Center serves all students who
take chemistry courses as well as the
department’s professors and teaching assistants.
The center maintains waiting lists and offers
other assistance with registration; returns
examinations and homework assignments and
maintains a file of lecture hand-outs; provides a
library of chemistry textbooks; and maintains
bulletin boards with information on all
lower-level chemistry courses. Information about
student organizations and departmental
scholarships and awards also is available at the
Chemistry Center.

Student Organizations
Students may join the Undergraduate Chemical
Society (UCS), a student affiliate of the American
Chemical Society (ACS). Chapter activities
include dinner meetings with guest speakers; a
chemistry tutoring service for other students;
participation in local and national meetings of the
ACS; and participation in chemistry outreach
programs. Students in UCS develop leadership,
orGANization, and speaking skills that will be
valuable throughout their college experience and
subsequent careers.

The department has a chapter of Alpha Chi
Sigma, a co-ed chemistry fraternity. The Alpha
Theta Chapter is open to students in chemistry,
biochemistry, chemical engineering, and related
fields. Alpha Chi Sigma sponsors many social and
professional events throughout the year.

The department also supports the activities of
WISE (Women in Science and Engineering),
whose aim is to increase women’s participation
and advancement as students, faculty members,
and professional staff; promote a supportive study
and work environment for women; integrate
women’s ideas, strengths, and approaches into
research, teaching, and service; and inform the
public of educational and career opportunities for
women in scientific and technical fields. WISE
ponsors a living-learning community in Stanley
residence hall for first-year women majoring in
science or engineering, the Student-to-Student
Support in Science mentoring program, a service
learning program, and the WISE Discord and
Dining series.

Scholarships and Awards
A number of awards and scholarships are
available to chemistry majors, including the
American Institute of Chemists Award, the
Undergraduate Award in Analytical Chemistry,
the Chemistry Alumni Awards (one each for a
sophomore, a junior, and a senior), and the
Merck Index Award. Chemistry majors also may
apply for Russell K. Simms and
Shoemaker-Strickler Scholarships.

Graduate Programs
Master of Science
The department offers the Master of Science,
with or without thesis, in analytical, inorganic,
organic, and physical chemistry and in chemical
physics. Candidates for the M.S. must
demonstrate minimal proficiency in analytical,
inorganic, organic, and physical chemistry by
passing specific examinations or by enrolling in
suitable core courses. This requirement must be
completed by the end of the second year of
enrollment. At least 30 s.h. of graduate work are
required for the M.S. A g.p.a. of at least 3.00 is
required for admission to the master’s
examination.

Doctor of Philosophy
A program of study for the Doctor of Philosophy
in the areas listed for the M.S. includes the
minimal proficiency examinations, core courses
as necessary, a minimum of 11 s.h. of advanced
course work, and research.

Students who have met the course requirements
with a cumulative g.p.a. of 3.00 or higher are
admitted to the oral comprehensive examination
upon presentation and preliminary approval of
their written research proposal and research
progress report; they must take the oral
comprehensive examination no later than the end of their second year of enrollment.

Upon completing Ph.D. research, students prepare the dissertation. The final examination consists of an oral defense of the thesis, at which time at least one manuscript of the publishable portion of the thesis is presented.

**Interdisciplinary Programs**

The Department of Chemistry cooperates in interdisciplinary programs in applied mathematical sciences and in chemical physics (see the Graduate College section of the Catalog). Students with undergraduate degrees in chemistry, physics, mathematics, or engineering are eligible.

**Admission**

Applicants for graduate admission should have a bachelor's degree in chemistry, preferably with a g.p.a. above 3.00. Most admitted graduate students receive financial support. For application information, consult the Department of Chemistry.

**Facilities**

The department is housed in the Chemistry Building, a five-story structure containing 2 auditoriums, 5 lecture rooms, 15 undergraduate laboratories, 43 graduate research laboratories, a computer laboratory, and a number of special-purpose instruction rooms. Research laboratories and offices of chemistry faculty members are also housed in the Iowa Advanced Technology Laboratory, one-half block from the Chemistry Building. Modern scientific equipment is available for research.

The department's excellent library facilities are available to all students. The library contains standard reference works and complete volumes of chemistry and chemical engineering journals and subscribes to a large number of current scientific journals. The library provides online access to electronic journals and chemistry databases.

**Courses**

### Primarily for Undergraduates

Students planning to take more than one year of chemistry should take 004:011 and 004:012. Students who require only one year of chemistry with no laboratory component may take 004:007 and 004:008.

#### 004:007 General Chemistry I

- **3 s.h.** Atoms, structure, chemical bonds, mole relations, stoichiometry; states of matter, acids and bases, reaction rates, electrochemistry, nuclear chemistry. GE: natural sciences. Prerequisite: elementary algebra.

#### 004:008 General Chemistry II

- **3 s.h.** Organic chemistry. GE: natural sciences. Prerequisite: 004:007 or high school chemistry.

#### 004:009 Supplemental Chemistry Lab

- **1 s.h.** Lab techniques, elementary synthesis, measurement, analysis, case-study lectures and experiments, safety glasses, appropriate dress, compliance with laboratory safety protocols. Prerequisite: grade of C or higher in 004:013 or 004:018 or 004:019 or consent of instructor.

#### 004:011 Principles of Chemistry I

- **4 s.h.** Chemical bonding and chemical reactions; atomic and molecular structure, chemical equations, stoichiometry, gases, liquids, thermodynamics of phase changes, solutions, equilibrium, acids, bases, pH, elementary organic chemistry; the solid state, including modern materials; lecture, discussion, laboratory. GE: natural sciences. Prerequisite: 22M:002, or ACT math subscore of 24 and MPT II score of 20, or ACT math subscore of 24 and MPT III score of 10.

#### 004:012 Principles of Chemistry II

- **4 s.h.** Continuation of 004:011; collegiate properties of solutions, chemical thermodynamics, stoichiometry, chemical kinetics, chemical bonding, aspects of industrial chemistry, nuclear chemistry; lecture, discussion, laboratory. GE: natural sciences. Prerequisite: 004:011.

#### 004:014 Principles of Chemistry II

- **3 s.h.** GE: natural sciences.

#### 004:016 Principles of Chemistry Lab

- **2 s.h.** Laboratory techniques for 004:014. GE: natural sciences. Prerequisites: grade of C or higher in 004:014, or 004:018 and 004:019.

#### 004:018 Chemical Science I

- **3 s.h.** GE: natural sciences.

#### 004:019 Chemical Science II

- **3 s.h.** GE: natural sciences.

#### 004:020 Chemical Science Laboratory

- **2 s.h.** GE: natural sciences.

#### 004:021 Basic Measurement

- **3 s.h.** Continuation of 004:012; techniques of data collection and processing, including inorganic and instrumental techniques for data collection and computer techniques for data processing. Prerequisites: 004:012 or 004:020, and chemistry major.

#### 004:029 First-Year Seminar

- **1-2 s.h.** Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisites: first- or second-semester standing.

#### 004:111 Analytical Chemistry I

- **3 s.h.** Modern theory and practice; emphasis on chemical equilibria (acid-base chemistry), electrochemistry, spectroscopy (potentiometry, volumetry, coulometry). Pre or corequisite: 004:131 or 004:132 or consent of instructor.

#### 004:112 Analytical Chemistry II

- **3 s.h.** Continuation of 004:111; emphasis on instrumental methods, including atomic and molecular spectroscopy, mass spectrometry, chemical separations. Prerequisite: 004:111.

#### 004:121 Organic Chemistry I

- **3 s.h.** Carbon-containing compounds; structure, stereochemistry, physical properties, reactivity, reaction mechanisms, synthesis; emphasis on alkanes, alkenes, aldehydes, alcohols, amines, aromatics. Prerequisites: 004:012 or 004:014 or 004:019.

#### 004:122 Organic Chemistry II

- **3 s.h.** Continuation of 004:121; use of spectroscopic techniques to determine chemical structures; chemistry of carbonyl compounds, amines, ethers, amino acids, carbohydrates, and nucleic acids. Prerequisites: 004:121 or 004:123; and chemistry, biochemistry, or chemical engineering major.

#### 004:125 Inorganic Chemistry

- **2 s.h.** Modern principles; emphasis on descriptive chemistry of the main group and transition elements, ionic and covalent chemical bonding theories, symmetry, infrared spectroscopy. Prerequisite: 004:012 or 004:014 or 004:019. Corequisites: 004:122 or 004:124.

#### 004:131 Physical Chemistry I

- **3 s.h.** Chemical thermodynamics and its application to chemical equilibrium, phase changes and chemical equilibria, ideal and real gases; kinetic theory; surface absorption and electrochemistry; thermodynamics. Prerequisites: 004:012 or 004:014 or 004:019, and 029:012 or 029:082, or 22M:026 or equivalent.

#### 004:132 Physical Chemistry II

- **3 s.h.** Quantum mechanics and its application to atomic and molecular structure; determination of structure and bonding by various spectroscopic methods; chemical kinetics. Prerequisites: 004:012 or 004:014 or 004:019, and 029:012 or 029:082, or 22M:026 or equivalent.

#### 004:135 Physical Chemistry Laboratory

- **2 s.h.**

#### 004:141 Organic Chemistry Laboratory

- **3 s.h.** Preparation, purification, identification, analysis of chemical compounds, principally organic. Prerequisites: 004:011 and 004:012, or 004:016, or 004:020; and 004:121 or 004:123. Corequisites: 004:122 or 004:124.

#### 004:142 Organic Chemistry Laboratory for Majors

- **3 s.h.** Preparation, purification, identification, analysis of chemical compounds, principally organic compounds. Open only to chemistry, biochemistry, and chemical engineering majors. Prerequisites: 004:011 and 004:012, or 004:016, or 004:020; and 004:121 or 004:123. Corequisites: 004:124.

#### 004:143 Analytical Measurements

- **3 s.h.** Modern theory and practice of laboratory methods; emphasis on experimental techniques and data analysis in spectroscopy, chromatography, electrochemistry. Prerequisite: 004:111. Corequisite: 004:112.

#### 004:144 Physical Measurements

- **3 s.h.** Experiments using instrumentation and computers to illustrate the principles and practice of modern chemistry. Prerequisites: 004:021, and 004:113 or 004:132, and chemistry major. Corequisites: 004:131 or 004:132.

#### 004:153 Inorganic Chemistry Laboratory

- **3 s.h.** Preparation and characterization of a variety of inorganic, organometallic, and coordination compounds of the main group and transition elements; emphasis on synthetic techniques, methods for characterization of inorganic species. Prerequisites: 004:125, and 004:141 or 004:142, or consent of instructor.

#### 004:162 Undergraduate Research

- **1-4 s.h.** Prerequisite: consent of advisor.

#### 004:170 Advanced Inorganic Chemistry

- **3 s.h.** Modern principles, including crystal field /ligand field/molecular orbital theory, inorganic reaction mechanisms, coordination chemistry, bioinorganic chemistry, metallo-organic chemistry, main group and transition metal organometallic chemistry, solid-state inorganic chemistry. Prerequisites: 004:125 and 004:132. Pre- or corequisite: 004:153.

#### 004:171 Advanced Analytical Chemistry

- **3 s.h.** Emphasis on fundamental aspects of electrochemistry, atomic and molecular spectroscopy, chemical separations. Prerequisites: 004:112, 004:131, and 004:132.

#### 004:172 Advanced Organic Chemistry

- **3 s.h.** Basic concepts from perspectives of structure, mechanism, synthesis, stereochemistry. Prerequisite: 004:122 or 004:124.

#### 004:173 Atmospheric and Environmental Chemistry

- **3 s.h.** Fundamental chemical processes of importance in the atmosphere, soil, and water, with emphasis on kinetics and photochemistry of homogeneous and heterogeneous reactions, atmospheric structure and dynamics, global geochemical cycling, chemistry-climate relationships, environmental remediation strategies; experimental methods in field and laboratory studies. Pre- or corequisite: 004:131 or 004:132.

#### 004:175 Introduction to Polymer Chemistry

- **1 s.h.** Synthesis, structure, characterization, properties, and applications of polymers. Prerequisites: 004:122 and 004:125.

#### 004:180 Introduction to Molecular Modeling

- **3 s.h.** Basic theories of molecular modeling and their hands-on applications to chemical research, potential energy surfaces; geometry optimization; molecular dynamics; molecular mechanics, semi-empirical and ab initio SCF theory; basis sets;

004:181 Fraud in the Chemical Sciences 1 s.h.
Extent and nature of fraudulent activities, methods to uncover and prevent fraud, internal and external policing mechanisms, societal impact. Prerequisite: 004:131 or 004:132 or equivalent.

004:191 Graduate Chemistry Orientation 2 s.h.
Pedagogy, safety and research issues relevant to advanced careers in chemistry. Prerequisite: senior standing.

Primarily for Graduate Students

004:201 Special Topics in Inorganic Chemistry 1-3 s.h.
Repealable. Prerequisite: 004:170.

004:203 Organometallic Chemistry 3 s.h.
Emphasis on organometallic compounds of transition metal electropositive elements. Prerequisite: 004:170.

004:204 Physical Methods in Inorganic Chemistry 3 s.h.
Application of physical methods to problems; recent developments; emphasis on magnetic resonance spectroscopy. Prerequisite: 004:170.

004:205 Bioinorganic Chemistry 3 s.h.
The role of metal ions in biology from an inorganic chemical perspective; emphasis on structure and mechanism for transition metal containing metallo-enzymes. Prerequisite: 004:170 or equivalent.

004:206 Solid-State and Materials Chemistry 3 s.h.
Introduction to the chemical concepts of solid-state chemistry; focus on synthesis and characterization of various inorganic materials; structure/property relationships; real-world examples. Prerequisite: 004:170 or equivalent.

004:207 Electrochemistry 3 s.h.
Fundamental aspects, including mass transport and electron transfer, electrochemical methodology (e.g., voltammetry and potentiometry), determination of homogeneous and heterogeneous reaction mechanisms. Prerequisites: 004:111, 004:112, and 004:171.

004:208 Spectroscopy 3 s.h.
Principles of atomic and molecular absorption and emission spectroscopy in ultraviolet, visible, and infrared regions of the spectrum, including fluorescence, phosphorescence, Raman spectroscopy; applications to analytical problems, with emphasis on modern instrumental and methodology. Prerequisites: 004:111, 004:112, and 004:171.

004:209 Separations 3 s.h.
Separation science, emphasis on gas and liquid chromatography, including mobile and stationary phases, instrumentation, detection, applications and sheet method, supercritical fluid chromatography, capillary electrophoresis, solid phase extraction techniques. Prerequisites: 004:111, 004:112, and 004:171.

004:210 Chemical Sensors 1 s.h.
Theory, practical limitations, analytical utility based on immobilized reagents with electrochemical, thermal, optical transduction mechanisms. Prerequisites: 004:111 and 004:112, or 004:171.

004:211 Chemical Catalysis in Biology 3 s.h.
Modern enzymology; studies of enzymes using methods of physical, organic, analytical chemistry; fundamental guidelines of biological catalysis, recent findings from scientific literature.

004:212 Mass Spectrometry 1 s.h.
Theory and practice of methods and instrumentation used in modern analytical mass spectrometry; emphasis on hardware components such as ionization sources, sample delivery mechanisms, mass analyzers, instrumental interfaces. Prerequisites: 004:111 and 004:112, or 004:171.

004:213 Special Topics in Analytical Chemistry arr.
Content varies. Repeatable.

004:214 Chemical Systems Modeling 2 s.h.
Fundamental and applied aspects of surface chemical processes; theories of molecular adsorption/adsorption and surface complexation; kinetics; surface analysis and instrumentation; applications of surface science chemistry in heterogeneous catalysis, heterogeneous environmental/subsurface processes, and materials chemistry. Repeatable. Prerequisite: 004:131 or consent of instructor.

004:217 Chemical Equilibrium and Solution Properties 1 s.h.
Protocol for solving equilibrium problems; characterizing systems with equilibrium methods; role of solvent and solution properties on equilibrium responses. Prerequisites: 004:111, 004:112, and 004:171.

004:218 Analytical Application of Lasers 1 s.h.
Lasers and laser spectroscopy methods; basics of laser theory and operation, laser-induced processes; major laser-based spectroscopy methods, including absorption, fluorescence, ionization, techniques; applications to analysis. Prerequisites: 004:111, 004:112, and 004:171.

004:219 Chemistry in Technology 1 s.h.
Applications of chemical technology, the patent and technology transfer process. Prerequisite: upper-level undergraduate standing.

004:220 Electrochemistry of Polymer Films 1 s.h.
Use of electrochemical methods to characterize polymer and thin films; transport through polymer films and composites, electrochemistry of polymer films. Prerequisite: a course in physical chemistry.

004:221 Spectroscopic Methods in Organic Chemistry 3-4 s.h.
Methods and techniques of structure determination for organic compounds. Prerequisite: 004:172 or equivalent.

004:225 Organic Chemistry Special Topics 3 s.h.
Prerequisite: 004:172 or equivalent.

004:228 Mechanisms of Organic Reactions 3 s.h.
Application of basic mechanistic concepts.

004:229 Advanced Organic Synthesis 3 s.h.
Preparation of complex organic compounds. Prerequisite: 004:172.

004:231 Statistical Thermodynamics I 3 s.h.
Fundamentals of classical thermodynamics and equilibria; ensembles, nonequilibrium systems; theory of phase transitions; Monte-Carlo methods, classical fluids, nonequilibrium systems. Prerequisite: 004:131.

004:233 Quantum and Computational Chemistry 3 s.h.
Fundamental principles of quantum chemistry; angular momentum, approximation methods; theory of atomic and molecular electronic structure; applications of computational quantum mechanics to chemical systems. Pre- or coreq: 004:132. Recommended: 004:180.

004:234 Molecular Spectroscopy 3 s.h.
Quantum mechanical theory of molecular spectroscopy, time-dependent perturbation theory, selection rules, line shapes; selected applications in microwave, vibrational (infrared and Raman), electronic, optical, and magnetic resonance spectroscopy. Prerequisite: 004:223.

004:235 Chemical Kinetics 3 s.h.
Potential energy surfaces, transition state theory, diffusion limited rates, linear free energy relationships, isotope effects, solvent effects, RRKM theory, connection between experiment and various theories in the gas and solution phases; emphasis on assignment of experimental error to derived quantities. Prerequisite: 004:132.

004:238 Surface Chemistry and Heterogeneous Processes 3 s.h.
Fundamental and applied aspects of surface chemical processes; theories of molecular adsorption/adsorption and surface complexation; kinetics; surface analysis and instrumentation; applications of surface science chemistry in heterogeneous catalysis, heterogeneous environmental/subsurface processes, and materials chemistry. Repeatable. Prerequisite: 004:131 or consent of instructor.

004:242 Advanced Physical Chemistry Topics 1-3 s.h.
Advanced topics relevant to modern physical chemistry. Repeatable.

004:250 Chemometrics 3 s.h.
Mathematical, statistical, and signal processing methods for applied science methods, including absorption, fluorescence, ionization, techniques; applications to analysis. Prerequisites: 004:111, 004:112, and 004:171.

004:260 Topics in Chemical Education 1-3 s.h.
Topics in chemical education research; in-depth analysis of issues and prevention of environmental pollutants. Repeatable. Prerequisite: graduate standing. Same as 046:275, 052:275, 053:275, 061:275, 099:275.

004:281 Seminar: Analytical Chemistry 0-1 s.h.
Repeatable. Prerequisite: consent of instructor.

004:282 Seminar: Chemical Education 0-1 s.h.
Presentation of research of literature data on topics of chemical education research.

004:283 Seminar: Inorganic Chemistry 0-1 s.h.
Repeatable. Prerequisite: consent of instructor.

004:285 Seminar: Organic Chemistry 0-1 s.h.
Repeatable. Prerequisite: consent of instructor.

004:286 Seminar: Physical and Environmental Chemistry 0-1 s.h.
Repeatable. Prerequisite: consent of instructor.

004:287 Research Frontiers in Chemistry arr.
Repeatable. Prerequisite: consent of instructor.

004:289 Research in Chemistry arr.
Thesis work for advanced degrees. Repeatable. Prerequisite: consent of department head and advisor.

004:291 Research Seminar 0-1 s.h.
Presentation and discussion of thesis research for advanced degrees. Repeatable.

CINEMA AND COMPARATIVE LITERATURE

Chair: Steven Ungar
Professors: Rick Altman, Daniel Baldesteron (Spanish and Portuguese/Cinema and Comparative Literature), Cheryl Herr (English/Cinema and Comparative Literature), Rudolf E. Kuenzli (English/Cinema and Comparative Literature), Christopher Merrill (English/Cinema and Comparative Literature), Franklin Miller, Leighton Pierce, Lauren Rabinowitz (American Studies/Cinema and Comparative Literature), Steven Ungar (French and Italian/Cinema and Comparative Literature)

Associate professors: Corey Creekmur (English/Cinema and Comparative Literature), Sabine Götz, Kathleen Newman (Spanish and Portuguese/Cinema and Comparative Literature), Maureen Robertson (Asian Languages and Literature/Cinema and Comparative Literature), Rosamie Scullion (French and Italian/Women's Studies/Cinema and Comparative Literature), Russell Valentino (Russian/Cinema and Comparative Literature)

Assistant professors: Paul Amad, Rosalind Galt, Louis Schwartz, Sasha Waters, David Wittenberg (English/Cinema and Comparative Literature)

Adjunct assistant professors: Sandra H. Barkan, Kathleen Edwards

Undergraduate degrees: B.A. in Cinema, B.A. in Comparative Literature

Undergraduate nondegree programs: minor in Cinema, minor in Comparative Literature

Graduate degrees: M.A., Ph.D. in Comparative Literature; M.F.A. in Translation; M.F.A. in Film and Video Production; M.A., Ph.D. in Film Studies

Web site: http://www.uwo.ca/ccl/

The Department of Cinema and Comparative Literature presents film, literature, translation, and relations with the other arts as subjects of international and interdisciplinary study. It provides a basis for intensive work in literary theory, critical methods, translation, film study, and the production of film, video, and digital arts.

The department encourages study in comparative arts, with particular emphasis on cinema, where the program’s resources are especially strong. Students and faculty members have easy access
to the resources of the Translation Workshop and the Institute for Cinema and Culture.

The cinema and comparative literature faculty offers expertise in the languages and cultural study of the Americas, China, England, France, Germany, Italy, Japan, Spain, and Sub-Saharan Africa. Specific expertise and direction are available in translation and in film and audiovisual history, production, and theory.

In addition to its own faculty, the department calls on faculty members in other departments and programs, including American studies, women’s studies, classics, Asian languages and literature, communication studies, English, French and Italian, German, history, Spanish and Portuguese, Russian, and theatre arts.

**Undergraduate Program**

The undergraduate majors in cinema and in comparative literature provide individualized programs in the interdisciplinary study of literature and the study and production of film and audiovisual arts. The program is designed to promote cultural awareness, to increase speaking and writing skills, and to develop capacities for systematic reasoning.

The Department of Cinema and Comparative Literature offers two undergraduate majors, a B.A. in comparative literature and a B.A. in cinema. Both ordinarily require that students earn at least 21 s.h. in the major in University of Iowa course work. Students may apply only 6 s.h. of course work to another major, minor, or certificate to the major in cinema or in comparative literature.

**Bachelor of Arts in Cinema**

The undergraduate major in cinema provides an individualized program in the interdisciplinary study of film and the production of creative work in film, video, and interactive multimedia. The program is designed to promote cultural and artistic awareness, to increase speaking and writing skills, and to develop capacities for systematic reasoning and effective production in cinema arts.

All students are expected to gain a perspective on both the study and the production of film, video, or digital media while becoming acquainted with the historical, critical, and theoretical issues of the area. In conjunction with an appropriate overall curriculum, the major in cinema can offer effective preparation for continuing study or creative work in the humanities, arts, and cinema; provide a solid foundation for careers in film, video, television, and digital production; and lead to careers in arts administration, advertising, and business.

In addition to completing the General Education Program, cinema majors complete a minimum of 33 s.h. as follows.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>048:001</td>
<td>Introduction to Film Analysis</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>048:025</td>
<td>Introduction to Critical Reading and Viewing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>048:034</td>
<td>Modes of Film and Video Production</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>048:095</td>
<td>Undergraduate Seminar</td>
<td>3 s.h.</td>
</tr>
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</table>

One of these:

<table>
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<tr>
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<th>Credit Hours</th>
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<tbody>
<tr>
<td>048:030</td>
<td>Introduction to Film Theory</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>048:100</td>
<td>Introduction to Criticism and Theory</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>048:120</td>
<td>Issues in Film Theory</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

One film studies or film production course at the 100 level

Additional cinema and comparative literature course work, including at least 9 s.h. of advanced film studies or film and video production courses numbered 048:050 or above

**Bachelor of Arts in Comparative Literature**

Majors in comparative literature share a common set of basic courses in the literatures of widely divergent cultures and historical periods, in translation, and in interaction among the arts. All students are expected to gain an international perspective on literature and the arts, and to become acquainted with interdisciplinary approaches to cultural study. In conjunction with an appropriate overall curriculum, the major in comparative literature can offer effective preparation for professional studies in fields such as law and business, or for employment in fields that value critical thinking and international understanding. It also offers excellent preparation for graduate work in the humanities.

The successful pursuit of comparative literature requires that students study at least one foreign cultural tradition, appropriately emphasizing language, literature, and the arts in historical context. Familiarity with the literatures and cultures of other nations goes hand-in-hand with theoretical inquiry and reflection upon basic issues such as the nature and value of storytelling in literature and other arts—for instance, film, song, and painting. Translation between languages and among different arts represents another basic center of theory and practice. Individual courses of study may extend into other disciplines, including history, philosophy, linguistics, anthropology, law, and psychology.

Two tracks are available for completing the B.A. degree: language and literature, and literature and arts. Working with faculty advisers close to their particular track and interests, students develop coherent, individualized programs of study that reflect their own interests and developing skills. In addition to completing the College of Liberal Arts and Sciences General Education Program, majors complete a minimum of 33 s.h. in courses as follows.

**Common Courses**

All students take the following courses, for a total of 18 s.h.

<table>
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<tr>
<th>Course Code</th>
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<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>048:025</td>
<td>Introduction to Critical Reading and Viewing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>048:040</td>
<td>Major Texts in World Literature I-IV</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>048:095</td>
<td>Undergraduate Seminar</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>048:100</td>
<td>Introduction to Criticism and Theory</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Comparative literature elective(s) numbered above 048:050

**Tracks**

**Students take a total of 15 s.h. of work in one track.**

**Foreign Language and Literature Track**

To complete this track, students take 9 s.h. of courses in one foreign language, read in the original language. One course in composition and conversation may count toward the major. (Language courses taken to complete the General Education Program may not be included.)

Students take an additional 6 s.h. of course work in cinema and comparative literature or a related area (e.g., English and American literature, film, linguistics, anthropology, philosophy, history) or in a second foreign language.

**Literature and Arts Track**

To complete this track, students take 12 s.h. of advanced work (100-level or above) in a single fine arts area. They may count one course in advanced performance, practice, or production toward the major, with consent of the director of undergraduate studies.

One additional 3 s.h. course must focus explicitly on arts and literature in comparative perspective.

**Four-Year Graduation Plan**

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

**B.A. in Cinema**

Note: The cinema major requires only one course in film, video, and digital production. Only this course is guaranteed to students who have signed the four-year graduation plan agreement. More advanced courses in production may be used to complete the major, but admission to these courses is limited and depends on student achievement in production courses.

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

Before the fifth semester begins: at least two courses in the major (including 048:001, and 048:025 or 048:034) and at least half of the semester hours required for graduation

Before the seventh semester begins: at least six courses in the major (including 048:001, 048:025, and 048:034), and at least three-quarters of the semester hours required for graduation

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

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

**B.A. in Comparative Literature**

Note: Because the major may require competency in a language in which the student
will take advanced work, the student may need to acquire this language competency through course work early in the plan. Such course work is not reflected in these checkpoints.

Before the third semester begins: at least one-quarter of the semester hours required for graduation
Before the fifth semester begins: at least two courses in the major and at least one-half of the semester hours required for graduation
Before the seventh semester begins: at least six courses in the major and at least three-quarters of the semester hours required for graduation
Before the eighth semester begins: at least nine courses in the major

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

Honors

To graduate with honors in cinema or comparative literature, students must be members of the University Honors Program, which requires that students maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information). They must identify an area that extends beyond regularly offered course work and must complete a project in consultation with one or two faculty members, including a major adviser. Information is available from the Department of Cinema and Comparative Literature office.

Minor in Cinema

Students majoring in other disciplines may earn a minor in cinema by completing 15 s.h. of work at The University of Iowa in cinema courses with a g.p.a. of at least 2.00. Of these 15 s.h., at least 12 must be in courses numbered 048:040 and above. Students must choose courses with a primary emphasis in cinema. A list of approved courses is available from the department.

Minor in Comparative Literature

Students majoring in other disciplines may earn a minor in comparative literature by completing 15 s.h. of work at The University of Iowa in comparative literature with a g.p.a. of at least 2.00. Of these 15 s.h., at least 12 must be in courses numbered 048:040 and above. Students must choose courses with a primary emphasis in comparative literature. A list of approved courses is available from the department.

Graduate Programs

Master of Arts in Film Studies

The M.A. in Film Studies requires 36 s.h. of course work. The focus is on film in an international context, with required distributions of course work in U.S. cinema, European cinema, world cinemas, and film production, documentary film, animation, or experimental film.

Formal degree requirements are met by course work,lera research paper, and a written examination on two areas, selected by the student from one list focusing on film theory and another list focusing on film history. Exams are offered annually in January, and the research paper normally is submitted in April of the second year of graduate study.

Master of Arts in Comparative Literature

The M.A. in comparative literature requires 37 s.h. of course work. The focus is on literature in an international context, with concentration on two or more national literatures and on the theory and study of literature in general. In consultation with faculty advisers, students combine courses in comparative literature and allied departments to design a coherent program of study.

Formal degree requirements may be satisfied by a written examination on reading lists agreed upon by students and their advisers, or by a written thesis and an oral examination on the thesis and its relation to problems and issues in comparative literature. The M.A. also may be awarded upon successful completion of the comprehensive examination for the Ph.D.

Master of Fine Arts in Film and Video Production

The M.F.A. degree combines 54 s.h. of creative and scholarly course work aimed at developing abilities to produce artistic work. A comprehensive exam in January of the second year, a research paper, and a thesis project complete the formal degree requirements.

Master of Fine Arts in Translation

The M.F.A. in translation promotes creative performance and study of languages, literatures, criticism, and cultural history. The aim of the program is to encourage the practice of literary translation and to bring about greater awareness of its tradition, contributions, and possibilities. The Iowa Translation Workshop is the central course in the program.

Admission to the program is granted on the basis of a submitted portfolio, including translations into and original writing in English as well as supporting evidence of competence. Degree requirements include a thesis—usually a book-length collection of poems or stories, or a short novel—translated out of the original language into English and accompanied by a critical introduction.

A total of 48 s.h. of graduate study is required, of which 24 s.h. must be taken at The University of Iowa. Besides workshop hours, course work includes study of foreign literature(s), creative writing (stylistics, etc.), and criticism. Thus, M.F.A. students may expect to take courses in foreign language departments, the creative writing program, and the English department, as well as in comparative literature.

Doctor of Philosophy in Film Studies

The doctorate requires at least 72 s.h. of graduate course work, concentrated in film history and film theory. With the consultation and guidance of a faculty committee, students prepare for a qualifying examination in the first or second year, formulate and pursue a plan of study proposing areas to be mastered before the dissertation, present a predissertation exam on these areas, and write a dissertation in the area of advanced research.

Doctor of Philosophy in Comparative Literature

Students seeking a Ph.D. study at least three literatures, one in historical depth and two others in limited areas of specialization. Students are encouraged to include an interdisciplinary area of concentration. All candidates devote a portion of their programs to comparative study, bringing the several areas into focus. Specific areas and interrelations of areas are determined by the student in consultation with appropriate faculty members.

Some typical critical and comparative areas are European Renaissance, romanticism, structuralism and poststructuralism, narrative theory in literature and film, symbolist poetics and modern literature, oral literature in antiquity and today, and satire, rhetoric, and the theory of social interaction.

The Ph.D. dissertation should demonstrate the candidate’s ability to write a substantial piece of scholarship or criticism. Translation of a work of sufficient significance and linguistic complexity, preceded by a critical introduction, may serve as an acceptable dissertation. The final oral exam centers on the dissertation and its background.

Admission

The study of literature across linguistic and geographical borders calls for training in languages. A thorough knowledge of at least one foreign language is required for admission to the M.A. program; knowledge of at least two foreign languages is a prerequisite for doctoral study.

Further information is available in the procedural guide for graduate students in comparative literature, available from the program office.

Institute for Cinema and Culture

The Institute for Cinema and Culture provides information concerning availability of films and film material for faculty and students. It helps departments, faculty members, and student groups present films and speakers that attract an interdisciplinary audience.

Each semester the institute sponsors a symposium and related film series on topics that
alternate between general aesthetic or theoretic interests and those focusing on a specific culture or moment. The Proseminar in Cinema and Culture (048:112) gives undergraduates and graduate students an opportunity to prepare for the symposia through weekly readings and screenings.

Iowa Translation Workshop

The Iowa Translation Workshop (048:260) is offered each fall as a course for advanced students in creative writing and translation. The workshop is closely coordinated with the International Writing Program, which annually brings 20 or more writers from other countries to Iowa City for 10 weeks of activities on the University of Iowa campus. Students in the fall workshop work closely with one or more writers in translating their works into English.

Courses

048:001 Introduction to Film Analysis 3 s.h.
Methods of analyzing various kinds of films, with emphasis on classical narrative works from the American and European traditions; shot-by-shot breakdown, narrative segmentation, auteur, genre.

048:002 Survey of Film 3 s.h.
Film history, theory, criticism; emphasis on technology, technical, cultural function; screenings of narrative, documentary, experimental films. GE: humanities.

048:010 Contemporary Cinema 3 s.h.
Current American and foreign cinema; types, styles, directors; relationships between movies and film industries; cultural contexts; the moving-image experience.

048:011 Films and Screenplays 3 s.h.
Structure of films in a variety of forms, from canonical films examined with the aid of their scripts to promising screenplays that never reached the screen or did so in altered form. Same as 008:011.

048:012 Film and Society 3 s.h.
Social relationships between motion pictures and American culture, both historical and contemporary; censorship, treatment of social issues; representation of minorities in cinema, roles of minority groups in filmmaking.

048:020 U.S. Film 3 s.h.
The film industry and its social and artistic effects reflected in characteristic films across several decades.

048:021 European Film History 3 s.h.
German Expressionism, Soviet Constructivism, Italian Neorealism, the new German film; history of cinematic art in cultural, social, political contexts. GE: humanities.

048:022 World Film 3 s.h.
Introduction to filmmaking and film culture in several countries or regions outside the United States and Europe; films from Africa, Asia, and Latin America in historical context.

048:023 Documentary Film 3 s.h.
History and theory of documentary film from Flaherty to cinema vérité, impact of television on film.

048:025 Introduction to Critical Reading and Viewing 3 s.h.
Critical approach to literature and audiovisual media (film, video, interactive multimedia); selected texts, scholarly and critical responses to them. Prerequisite: completion of rhetoric requirement.

048:029 First-Year Seminar 1-2 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities, field trips). Prerequisite: first- or second-semester standing.

048:030 Introduction to Film Theory 3 s.h.
Language, art form, social expression, emphasis on major historical positions in classical film theory, recent developments.

048:034 Modes of Film and Video Production 4 s.h.
Introduction to narrative, fiction, and experimental modes of film and video production; video exercises and nonlinear editing.

048:040 Major Texts in World Literature I 3 s.h.
Reading, analysis of major literary texts from writing’s origins to 1600 in the Mediterranean, Asia, Africa, interrelationship of literature, history. Offered fall semesters. GE: humanities. Same as 008:040.

048:041 Major Texts of World Literature II 3 s.h.
Reading and analysis of major literary texts from Neoclassicism to 1900, in chronological sequence; emphasis on interrelationships of literature and history. Offered spring semesters. GE: humanities. Prerequisite: completion of rhetoric requirement. Same as 008:041.

048:051 Film Criticism 3 s.h.
Purposes, presuppositions, styles of film criticism, from journalistic to scholarly; theoretical positions related to concerns of film critics.

048:052 Gender and Film 3 s.h.
American films from 1920s to 1980s, with emphasis on images of sexes, how images relate to society; theories of cinematic and sexual differences.

048:053 Introduction to Film Sound 3 s.h.
Sound as a physical phenomenon, overview of film sound history, approaches to film sound analysis, debates in sound theory.

048:055 Film Production: Material of 16mm Film 3 s.h.
Basic 16mm motion picture camera, editing, and sound techniques; individual and group exercises. Prerequisite: 048:034.

048:056 Video Production: Nonfiction 3 s.h.
Single-camera shooting on location, with emphasis on videotape editing; group exercises oriented to nonfiction forms. Prerequisite: 048:034.

048:057 Screenwriting: Long Form 3 s.h.
Visualization, sequencing, dialog, preparation of treatment, screenplay for fiction film; script problems. Prerequisite: 048:034.

048:068 Video Production: Fiction 3 s.h.
Development of a film video making technique through group projects in the studio and on location, nonlinear editing. Prerequisite: 048:034.

048:070 Styles and Genres 3 s.h.
Film types (genre, science fiction, Italian comedy, etc.); validity of treating films in such groups.

048:071 Film Authors 3 s.h.
Study of a major director or comparison of two or three directors; film analysis and criticism; creativity as an industrial medium, biography’s relation to criticism, psychoanalysis of style.

048:079 Undergraduate Translation Workshop 3 s.h.
Translation exercises, discussion of translation works in progress; alternative strategies for translation projects. Working knowledge of a language other than English required. Same as 048:079.

048:081 Film and Literature 3 s.h.
Adaptation of films from novels and plays; signifying processes of these art forms and the cultural work they perform. Same as 008:081.

048:090 Issues in Film/Video Theory and Practice 6 s.h.
Film/video production with historical, analytical, and theoretical study; close study of a particular area of film practice, individual production project in that area (e.g., documentary or experimental film, animation, screenplay, or sound design). Prerequisites: 048:001 and 048:034.

048:091 Internship arr.
Opportunity to apply skills; faculty supervision, on or off campus.

048:095 Undergraduate Seminar 3 s.h.
Focus on a significant text or critical problem. Prerequisites: classical narrative works from the American and European traditions; shot-by-shot breakdown, narrative segmentation, auteur, genre.

048:099 Honors Tutorial arr.

048:100 Introduction to Criticism and Theory 3 s.h.
Critical approaches to the phenomenon of literature. Prerequisite: junior standing.

048:101 Topics in U.S. Silent Film 3 s.h.
Specific issues or period in U.S. silent film.

048:102 Topics in U.S. Sound Film 3 s.h.
Specific issues or periods in U.S. sound film.

048:103 Topics in Contemporary Film 3 s.h.
Specific issues or periods in contemporary film.

048:104 Topics in European Film 3 s.h.
Specific issues or periods in European film.

048:105 French Cinema 3 s.h.
History of film, French cinema, film analysis, relationship of filmmakers to politics, religion, and so forth. GE: foreign civilization and culture. Same as 009:147.

048:106 Topics in Asian Cinema 3 s.h.
Same as 008:127, 039:145.

048:107 Russian Literature in Translation 1860-1917 3 s.h.
GE: humanities. Same as 041:102.

048:108 History of Documentary Film 3 s.h.
In-depth study of a specific type, period, or concern of documentary filmmaking. Prerequisite: 048:001.

048:109 European Literature of the Nineteenth Century 3 s.h.
International and national perspectives on literary movements, works, authors before 1900. Same as 008:131.

048:110 Comparative Arts 3 s.h.
Cultural and aesthetic issues arising from side-by-side investigation of several art forms, including literature, cinema, painting, music, opera, architecture, periods, schools, styles, and their theories.

048:111 Cinema and Culture 3 s.h.
Films of one or more countries and periods; emphasis on interrelations among the arts, prevailing social conditions, industries and technologies reflected in films.

048:112 Proseminar in Cinema and Culture 1-2 s.h.
Focus on symposium topic of Institute for Cinema and Culture.

048:113 Film and Video Production: Drama 3 s.h.
Individual and group dramatic video projects; location and studio shooting, nonlinear editing. Prerequisite: 048:065 or 048:066.

048:114 Representation and Social Divisions 3 s.h.
Importance of motion pictures in relation to groups identified by gender, race, class, religion, and national origin.

048:115 Literary Geores in European Literature II 3 s.h.
Same as 008:126, 041:115.

048:116 Digital Production: Interactive Forms 3 s.h.
Experience in conceiving and authoring interactive presentations typical of those delivered via CD-ROM; related issues, such as the author/user relationship in social and institutional contexts (e.g., business, game playing, entertainment, education).

048:119 Topics in Film Sound 3 s.h.
An important moment or moments in film sound history or theory.

048:120 Issues in Film Theory 3 s.h.
A theorist, approach, or problem in film. Recommended: classical film theory.

048:121 Film and Video Production: Selected Topics 3 s.h.
Student productions focusing on a particular genre, issue, or process; 16mm, video, or audio, such as experimental film or video, collaborative projects, fiction, narrative, fiction, and so forth. Prerequisite: 048:065 or 048:066.

048:123 Film and Video Production: Image Design 3 s.h.
Strategies, techniques, and technologies used in moving image production; emphasis on gestural light; composition; short projects using film, videotape. Prerequisite: 048:065 or 048:066.

048:124 Film Production: Advanced 16mm Film 4 s.h.
Processes and approaches to the short film; student production of a seven-minute, sync-sound, mixed, and printed 16mm film. Prerequisites: 048:005, and 048:065 or 048:067.

048:125 Screenwriting: Short Form 3 s.h.
Exercises and projects in writing, developing, and workshopproducing screenplays for short film or video; budgeting, location scouting, other preproduction activities. Prerequisite: 048:065 or 048:066.

048:126 Cult Films of the Last Soviet Generation 3 s.h.
Favorite films of post-Soviet generation; the “period of stagnation” in post-Sovietstra textbooks. Same as 041:126.

048:127 Topics in British and Irish Film 3 s.h.
Same as 008:124.
Graduates with a major in Greek learn to read ancient Greek literature. They acquire knowledge of the history of ancient Greece of the eighth through the fourth centuries B.C.E., where most of the modern Western notions of political, artistic, and social life are rooted.

For a B.A. with a major in Greek, students must earn a minimum of 30 s.h. in the major, including at least 24 s.h. in Greek language courses. Transfer credit is evaluated on an individual basis. The following courses, or their equivalents, are required.

- 20G:001 20G:002 Elementary Greek I-II 8 s.h.
- 20G:011 20G:012 Second-Year Greek I-II 6 s.h.
- 20G:176 Greek Composition 3 s.h.

Four additional Greek language courses numbered 20G:120 or above 12 s.h.

The advanced undergraduate Greek courses 20G:120 20G:121 Archaic and Classical Periods I-II and 20G:122 20G:123 Classical and Hellenistic Periods I-II rotate on a two-year cycle and may be repeated or taken in any sequence. These courses cover a broad range of prose and poetry in their historical contexts.

**Major in Latin**

Graduates with a major in Latin learn to read Latin; they also acquire an understanding of the Roman Republic and Empire when Rome established its hegemony over the Mediterranean basin, laid the foundation of law for the Western world, and transmitted the culture of Greece to the West.

Candidates for the B.A. with a major in Latin must earn a minimum of 30 s.h. in the major, including at least 24 s.h. in Latin language courses. Transfer credit is evaluated on an individual basis. The following courses, or their equivalents, are required.

- 20L:001 20L:002 Elementary Latin I-II 8 s.h.
- 20L:011 20L:012 Second-Year Latin I-II 6 s.h.
- 20L:171 Elementary Latin Composition 3 s.h.

Four additional Latin language courses numbered 20L:120 or above 12 s.h.

The advanced undergraduate Latin courses 20L:120 20L:121 Latin Literature of the Republic I-II and 20L:122 20L:123 Latin Literature of the Empire I-II, rotate on a two-year cycle and may be repeated or taken in any sequence. These advanced courses cover a range of Latin prose and poetry in their historical contexts from the mid-Republic to the third century C.E. In addition, 20L:198 Medieval Latin may be counted toward the major.

See the College of Education section of the Catalog for information on teacher licensure in Latin.

**Four-Year Graduation Plan**

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

**B.A. in Ancient Civilizations**

Note: 20E:194 Seminar in Ancient Civilization is offered only during fall semesters.

Before the third semester begins: 15 s.h.

Before the fifth semester begins: 30 s.h.
Before the seventh semester begins: at least six courses in the major and at least three-quarters of the semester hours required for graduation

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

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

Before the seventh semester begins: six courses in the major and fourth semester of Greek, or sixth semester of Greek and fourth semester of Latin, two more courses in the major, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: one semester of composition in either Greek or Latin (may be completed during the eighth semester) and two more courses in the major

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

**B.A. in Classics**

Before the third semester begins: Latin I-II or Greek I-II, and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: Second-Year Latin I-II and Elementary Greek I-II, or Second-Year Greek I-II and Elementary Latin I-II, and at least one-half of the semester hours required for graduation

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

Before the eighth semester begins: one or two more courses in the major

**B.A. in Greek**

Before the third semester begins: Elementary Greek I and II and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: Second-Year Greek I and II and at least one-half of the semester hours required for graduation

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

Before the eighth semester begins: one or two more courses in the major

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

**B.A. in Latin**

Before the third semester begins: Elementary Latin I-II and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: Second-Year Latin I-II and at least one-half of the semester hours required for graduation

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

Before the eighth semester begins: one or two more courses in the major

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

**Honors**

Membership in the University Honors Program requires that students maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information). Classics seniors who are members of the University Honors Program and who have attained a g.p.a. of at least 3.50 in their first three years of classics courses, may graduate with honors in Greek, Latin, or classics by completing two courses in honors reading, one each semester of the senior year, for 3 s.h. of credit each. The readings and discussions are on an ancient author or a field in ancient history or literature chosen by students and the instructor. During the first semester, students present an essay every other week; at the end of the second semester, they present a long paper, which is read and judged for honors by two members of the department. Requirements may be adapted for honors work in ancient civilization.

**Minors**

Minors are offered in Greek, Latin, classics, and ancient civilization. A minor in classics requires a minimum of 18 s.h. in classics courses. Minors in Latin, Greek, and ancient civilization require a minimum of 15 s.h. in classics courses. All minors require a g.p.a. of at least 2.00.

Students may count one relevant advanced course from the classics department offerings in English toward any of the minors. Only 3 s.h. of lower-level course work earned in transfer course work may be used toward a minor. Students earning a major or minor in classics, Greek, Latin, or ancient civilization may count toward the minor no more than 6 s.h. of course work used to satisfy requirements for another major, minor, or certificate, including majors and minors in the Department of Classics. All upper-level course work must be in University of Iowa courses. The undergraduate adviser has a list of relevant courses. Students entering with high school Latin or Greek also should consult the adviser for an appropriate course schedule.

**GREEK**

The sequence 20G:011-20G:012 Second-Year Greek I-II is considered advanced for the minor, as are all courses numbered 100 and above. A minor may be fulfilled by completion of the intermediate level plus two 100-level courses, one of which may be a relevant course in Greek history, culture, or literature offered by the Department of Classics and taught in English.

Students earning a major or minor in classics, Greek, Latin, or ancient civilization may count toward the minor no more than 6 s.h. of course work used to satisfy requirements for another major, minor, or certificate, including majors and minors in the Department of Classics.

**LATIN**

The sequence 20L:011-20L:012 Second-Year Latin I-II is considered advanced for the minor, as are all courses numbered 100 and above. A minor may be fulfilled by completion of the intermediate level plus two 100-level courses, one of which may be a relevant course in Roman history, culture, or literature offered by the Department of Classics and taught in English.

Students earning a major or minor in classics, Greek, Latin, or ancient civilization may count toward the minor no more than 6 s.h. of course work used to satisfy requirements for another major, minor, or certificate, including majors and minors in the Department of Classics.

**CLASSICS**

The sequences 20G:011-20G:012 Second-Year Greek I-II and 20L:011-20L:012 Second-Year Latin I-II, are required for the minor in classics. An additional minimum of 6 s.h. of upper-level courses from the department are required for a total of 18 s.h. At least one course must be in the Latin or Greek language.

Students earning a major or minor in classics, Greek, Latin, or ancient civilization may count toward the minor no more than 6 s.h. of course work used to satisfy requirements for another major, minor, or certificate, including majors and minors in the Department of Classics.

**Language for Nonmajors**

Nonmajors who wish to study Greek or Latin and who have a background in either language should take either the Greek Foreign Language Placement Test or the Latin Foreign Language Placement Test, offered during summer orientation programs and monthly by Evaluation and Examination Service. The tests help determine the level at which a student should begin Greek or Latin language study at The University of Iowa.

Students who want to complete the College of Liberal Arts and Sciences General Education Program foreign language component by studying Greek should take 20C:001-20C:002 Elementary Greek I-II and 20G:011-20G:012 Second-Year Greek I-II. Students who want to complete the component by studying Latin may choose 20L:001-20L:002 Elementary Latin I-II (20L:001 is a prerequisite for 20L:002) and 20L:011-20L:012 Second-Year Latin I-II. Students should take 20L:011 before 20L:012. Both courses must be taken to complete the General Education Program foreign language component.
Graduate Programs

Detailed information on graduate study at Iowa is provided in the Manual of Rules and Regulations of the Graduate College; see the Graduate College section of the Catalog.

Graduate students in classics may not include in their programs more than 12 s.h. of courses numbered 101-199.

Master of Arts

The department offers the M.A. in Latin, Greek, and classics. Candidates must earn a minimum of 30 s.h. by taking courses numbered 101 and above. Students must pass a sight examination in the language(s) studied and an examination on literature and history.

Doctor of Philosophy

Requirements for the Ph.D. include 72 s.h. of course work, including the courses listed below (27 s.h.). Students must take precomprehensive and comprehensive examinations and write a dissertation.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>20G:176</td>
<td>Greek Composition</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>20G:204</td>
<td>Archaic Greek Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>20G:205</td>
<td>Classical and Hellenistic Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>20L:204</td>
<td>Republican Literature</td>
<td>3 s.h.</td>
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<tr>
<td>20L:205</td>
<td>Imperial Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>20L:272</td>
<td>Advanced Latin Composition</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Two graduate-level courses in cognate subjects from departments such as linguistics, art history, rhetoric, philosophy, or anthropology 6 s.h.

Other interdisciplinary courses (with approval of the graduate adviser)

The remaining course work is made up from courses offered in and outside of the department.

PH.D. EXAMINATIONS

Precomprehensive exams must be taken in Latin sight reading and Greek sight reading. One sight reading exam must be attempted by the end of the first year of graduate study. Competence in reading both German and French must be demonstrated by the close of the second year of study.

Students must file a request for the precomprehensive exam at the end of their second year. The remaining exams may be taken in any sequence.

Second-year exam on literature and history—four hours, written

Latin literature based on reading list—three hours, written

Greek literature based on reading list—three hours, written

Special field or author (Greek)—four hours, written

Facilities

Extensive collections of classical texts and periodicals in the Main Library and the Art and Art History Library facilitate research in the major areas of Greek and Roman civilization. The department has a varied collection of slides on classical subjects and a small library. The classical museum, located in the department, contains a small collection of coins, vases, and facsimiles in bronze from Mycenae, Pompeii, and Herculaneum.

The University is a supporting institution of the American School of Classical Studies at Athens and the American Academy in Rome, thereby making those facilities available to its faculty and students. Students in residence are encouraged to participate in summer programs at the American Academy in Rome and the American School at Athens.

The Department of Classics offers students the opportunity to participate in an archaeological dig during the summer. Interested students should call the office in mid-February for information.

Courses

Classics in English for Undergraduates

All readings for these courses are in English; no previous knowledge of Greek or Latin is necessary.

20E:013 The Classical Views 3 s.h.

Ancient concept of the hero; major classical works, including Homer's Iliad, Vergil's Aeneid, Aesop's Golden Ass. Same as 008:013.

20E:014 Hero, God, Mortal: Literature of Greece 3 s.h.

Ancient Greek literature and culture as it is responded to Homer; may include genre (e.g., epic to tragedy), religion, changing concept of hero, interaction with Mediterranean culture, myth versus history. GE: foreign civilization and culture or humanities.

20E:015 Love and Glory: Literature of Rome 3 s.h.

Main themes and works of ancient Roman literature; works reflecting conflict of personal desire and public self in Rome. GE: foreign civilization and culture or humanities.

20E:026 Introduction to Ancient Art 3 s.h.

Art and architecture of Mediterranean civilization from Minian times to the age of Constantine. Prerequisite: consent of instructor. Same as 01H:026.

20E:029 First-Year Seminar 2 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first or second-semester standing.

20E:030 Greek Civilization 3 s.h.

History, literature, art, architecture, religion, social life ca. 3000 B.C.E. to second century B.C.E. GE: historical perspectives.

20E:031 Roman Civilization 3 s.h.

History, literature, politics, religion, social structure from eighth century B.C.E. to second century C.E. GE: historical perspectives.

20E:050 Word Power: Building English Vocabulary 3 s.h.

Analysis of unfamiliar English words through knowledge of the history and meaning of word parts. Prerequisite: one semester of rhetoric. Same as 08N:050.

20E:070 Civilizations of the Ancient Near East 3 s.h.

Cultural development of Egypt, the Middle East, and the Iranian Plateau from first urban societies of the Sumerians and the Nile Valley (c. 3000 B.C.E.) to the conquest of Persia by Alexander the Great (fourth century B.C.E.).

20E:071 The Middle East and Mediterranean Alexander to Suleiman 3 s.h.

Same as 016:045, 032:001.

20E:075 Ancients Sports and Leisure 3 s.h.

Sports, games, and hobbies in the ancient world, primarily Greece and Rome, 1500 B.C.E. to 500 C.E.; ancient Olympic games, Roman festival games; anthropology of sport.

20E:080 Ancient Science, Medicine, and Technology 3 s.h.

Ancient science, medicine, and technology as practiced by the ancient Mesopotamians, Egyptians, Greeks, and Romans; emphasis on Greek science and medicine.

Classics in English for Undergraduate and Graduate Students

20E:101 Ancient Egypt and the Ancient Near East 3 s.h.

Same as 16E:101.

20E:102 Barbarians in the Ancient World 3 s.h.

Same as 16E:102.

20E:103 Medical and Technical Terminology 2 s.h.

Memorization of stems, practice on computer terminal; no formal classes.

20E:105 Women in the Ancient World 3 s.h.

Same as 16E:105.

20E:106 Warfare in Ancient Mediterranean Society 3 s.h.

Same as 16E:106.

20E:108 Greek Drama in Translation 3 s.h.

Tragedies of Aeschylus, Sophocles, and Euripides and comedies of Aristophanes in their dramatic, historical, and social contexts; ancient and modern production techniques, film adaptations and stage productions. GE: humanities. Same as 049:180.

20E:109 Women in Antiquity 3 s.h.

Attitudes toward women and the role of women in ancient Greek and Roman society; ancient authors, male and female, and modern critics. Same as 131:109.

20E:112 Classical Mythology 3 s.h.

Ancient Greek and Roman myths, their interpretation by Western civilization; emphasis on flexibility of myth and importance in regard to art, literature, anthropological, psychological studies. GE: humanities. Same as 008:125.

20E:115 Greek Religion and Society 3 s.h.

From Bronze Age to the Hellenistic period, in context of Mediterranean culture; evidence such as choral hymns, inscribed prayers, magical curses inscribed on lead, architecture, sculpted offerings to the gods. GE: humanities. Same as 032:164.

20E:116 Roman Religion and Society 3 s.h.

Religious beliefs, practices and writings of Romans from eighth century B.C.E. to Second Century C.E. GE: humanities. Same as 032:118.

20E:117 Concepts of the City: Rome 3 s.h.

Physical and cultural development of Rome from early republic to emperor Constantine and rise of Christianity in fourth century C.E.

20E:118 Greek Archaeology and Ethnology 3 s.h.

Archaeology and ethnology of the Greek World, from the end of the Bronze Age to the late Roman Empire, sociocultural processes that influence development and persistence of Greek civilization. Prerequisite: introductory archaeology course or consent of instructor. Same as 013:192.

20E:119 Roman Archaeology 3 s.h.

Archaeology, ethnology of Roman Civilization from Iron Age eighth-century occupation of Palatine Hill to end of Roman empire in the West, C.E. 476. Same as 113:194.

20E:123 Early Greek Art 3 s.h.

Archaeology, sculpture, painting, minor arts from Mycenaean to Hellenistic times. Same as 01H:126.

20E:124 Classical Greek Art 3 s.h.

Continuation of 20E:123. Same as 03H:127.
20E:125 Greek Vase Painting  
3 s.h. 
Continuation of 20G:120. Prerequisite: 20G:012 or equivalent.

20E:126 Hellenistic Art  
3 s.h. 
Art, religion, culture of the Greeks, Romans, Egyptians 330-30 B.C.E. Same as 01H:129.

20E:127 Etruscan Art  
3 s.h. 
Architects and art from Bronze Age to Roman conquest of Etruria. Same as 01H:130.

20E:128 Early Roman Art  
3 s.h. 
Roman architecture, sculpture, painting, mosaics of republican, imperial, late antique periods. Same as 01H:132.

20E:129 Art and Culture in Ancient Pompeii  
3 s.h. 
Art and architecture as documents of ancient society and religion in cities destroyed by Vesuvius in C.E. 79. Same as 01H:134.

20E:130 Later Roman Art  
3 s.h. 
Art and architecture of imperial Rome and provinces, from the Antonines through Constantine, C.E. 118-337. Prerequisite: 01H:005 or 01H:026. Same as 01H:133.

20E:135 Topics from the Ancient World  
3 s.h. 
Culture, literature, and history of the ancient Mediterranean.

20E:140 Learning to Teach Second Languages I  
3 s.h. 
Prerequisite: 075:106. Same as 075:116.

20E:150 Gender and Sexuality in the Ancient World  
3 s.h. 
Thematic survey of gender and sexuality issues in the social, political, and religious life of ancient Greece and Rome, evidence from literature, the visual arts, archaeology. GE: foreign civilization and culture. Prerequisite: sophomore standing, completion of rhetoric requirement, and 20E:030 or consent of instructor. Same as 131:152, 154:121.

20E:190 Honors Readings  
arr. 
Discussion, readings, research for a paper on ancient civilization.

20E:194 Seminar in Ancient Civilization  
3 s.h. 
Prerequisite: classics major.

20E:199 Private Assignments  
arr. 
Readings in classical literature in translation.

20E:201 Topics in Comparative Romance Linguistics  
3 s.h. 
Same as 035:207, 103:262.

20E:210 Seminar Problems in Ancient Art  
3 s.h. 
Repeatable. Same as 01H:326.

20E:210 Classical Rhetoric  
2-4 s.h. 
Same as 008:267, 010:301, 018:310.

20L:001 Elementary Greek I  
4 s.h. 
Ancient Greek, the language of Homer, the New Testament, modern medicine and science, focus on reading Greek, Greek culture. GE: foreign language.

20L:002 Elementary Greek II  
4 s.h. 
Continuation of 20L:001; selections from Greek authors. GE: foreign language. Prerequisite: 20L:001.

20G:011 Second-Year Greek I  
3 s.h. 
Focus on reading Greek prose authors, such as Xenophon and Plato. GE: foreign language. Prerequisite: 20G:002 or equivalent.

20G:012 Second-Year Greek II  
3 s.h. 
Continuation of 20G:011; focus on reading and interpretation of Greek poetry. GE: foreign language. Prerequisite: 20G:011.

20G:120 Archiac and Classical Periods I  
3 s.h. 
Readings in major Greek authors of the Archaic and Classical periods. Prerequisites: 20G:012 or equivalent, and consent of instructor.

20G:121 Archiac and Classical Periods II  
3 s.h. 
Continuation of 20G:120. Prerequisite: 20G:012 or equivalent.

20G:122 Classical and Hellenistic Periods I  
3 s.h. 
Readings in Greek literature of the Classical and Hellenistic periods. Prerequisite: 20G:012 or equivalent.

20G:123 Classical and Hellenistic Periods II  
3 s.h. 
Continuation of 20G:122. Prerequisite: 20G:012 or equivalent.

20G:176 Greek Composition  
3 s.h. 
Review of Greek morphology, syntax, sentence structure; composition of sentences, short passages in Greek.

20G:190 Honors Readings  
arr. 
Discussion, readings, research for a paper on Greek literature, history, or civilization. Prerequisite: classics major.

20G:199 Private Assignments  
1-3 s.h. 
Directed reading and study with faculty member.

Greek for Graduate Students

Courses numbered 20G:221 through 20G:227 cover topics from the major genres and periods of Greek literature. They are offered on a four-year cycle.

20G:202 Advanced Reading  
arr. 
Prerequisite: graduate standing in classics.

20G:204 Archiac Greek Literature  
3 s.h. 
Survey of Greek literature and language from Homer to end of the fifth century.

20G:205 Classical and Hellenistic Literature  
3 s.h. 
Survey of Greek literature and language in and after the fourth century B.C.E.

20G:220 Greek and Roman Literary Criticism  
3 s.h. 
Early literary criticism in the fifth century B.C.E.; Aristophanes' critiques of his fellow poets, prose theory through Plato and Aristotle, Hellenistic and Roman treatises by "Longinus" (On the Sublime) and Horace (Ars Poetica); readings of Greek and Latin texts.

20G:222 Archiac Poetry  
3 s.h. 
Readings in archaic Greek poetry in the context of historical, religious, and poetic studies. Repeatable.

20G:223 Hellenistic Literature  
3 s.h. 
Readings in later Greek poetry and prose, concentrating on the development of classical themes. Repeatable.

20G:224 Greek History  
3 s.h. 
Readings in the ancient Greek historians (e.g., Herodotus, Thucydides) and examination of their times. Repeatable.

20G:225 Greek Philosophy  
3 s.h. 
Close examination of Greek texts of ancient philosophers (e.g., Plato or Aristotle); wider readings in English.

20G:226 Greek Drama  
3 s.h. 
Readings from the Greek dramatists Aeschylus, Sophocles, and Euripides in the context of their times. Repeatable.

20G:227 Greek Oratory  
3 s.h. 
Readings from classical Greek orators with attention to their historical, social, and cultural contexts and place in history of rhetoric. Repeatable.

20G:291 Greek Thesis  
arr. 
For Ph.D. students writing a dissertation. Repeatable. Prerequisite: Ph.D. candidacy.

Latin for Undergraduate and Graduate Students

Courses numbered 20L:221 through 20L:227 cover topics from the major genres and periods of Latin literature. They are offered on a four-year cycle.

20L:202 Advanced Reading  
arr. 
Repeatable. Prerequisite: graduate standing in classics.

20L:204 Republican Literature  
3 s.h. 
Survey of Latin literature and language from the early Republic to the end of the first century B.C.E.

20L:205 Imperial Literature  
3 s.h. 
Survey of Latin literature and language from the Augustan age through the second century C.E.

20L:217 Accelerated Elementary Latin/Graduate  
4 s.h. 
One year of Latin in one semester. Offered summer session.

20L:220 Republican Rome  
3 s.h. 
History and cultures of the late Roman Republic as evidenced in the writings of Cicero, use of Roman oratory as historical evidence, Roman rhetoric's relationship to earlier Greek rhetoric. Repeatable.

20L:221 Republican Poetry  
3 s.h. 
Readings from the poets of the Roman Republic (e.g., Catullus and his contemporaries). Repeatable.

20L:222 Augustan Poetry  
3 s.h. 
Close examination of the poetry of one or more poets of the Augustan Age (e.g., Vergil, Ovid, Horace, Tibullus, Propertius) with focus on poetic themes and historical context. Repeatable.

20L:223 Silver Latin  
3 s.h. 
Readings from Roman poets of the Neronian Era in the context of the times and poetic artistry. Repeatable.

20L:224 Roman History  
3 s.h. 
Readings from ancient Roman historians (e.g., Livy, Suetonius, Tacitus), focus on the times they examine. Repeatable.

20L:225 Roman Philosophy  
3 s.h. 
Close examination of Latin works of Lucretius, Cicero, and/or Seneca, wider readings in English. Repeatable.

20L:226 Roman Drama  
3 s.h. 
Readings from Roman dramatists (e.g., Plautus, Terence, Seneca) in the context of their times. Repeatable.

20L:227 Advanced Latin Composition  
3 s.h. 
Writing of extended prose passages in Latin.

20L:291 Latin Thesis  
arr. 
For Ph.D. students writing a dissertation. Repeatable. Prerequisite: Ph.D. candidacy.
COMMUNICATION STUDIES

Chair: Randy Hirokawa
Professors: Leslie Baxter (Communication Studies/Nursing), W. Wendell Miller Distinguished Professor, Bruce E. Cronbeck (A. Craig Baird Distinguished Professor of Public Address), Randy Hirokawa (Communication Studies/Community and Behavioral Health), John Durham Peters (F. Wendell Miller Distinguished Professor)
Professors emeriti: Samuel L. Becker, Hanno Harati, Robert Kemp, George R. Kline, Donovan J. Ochs
Associate professors: Barbara Biesecker, Kristine L. Fitch, Joy Hayes, David Hingstman
Assistant professors: Mark Andrejevic, Michelle Campo, Timothy Havens, Kembrew McLeod, Joanna Pfeiffer, Gillian Teather
Undergraduate degree: B.A. in Communication Studies
Undergraduate nondegree program: minor in Communication Studies
Graduate degrees: M.A., Ph.D. in Communication Studies
Web site: http://www.uiowa.edu/~commstud

The Department of Communication Studies focuses on the study of human communication as a social practice. Scholarship and teaching in the department centers on the role that human communication processes play in the construction, maintenance, reinforcement, and reformation of various aspects of social, professional, and institutional life.

The department provides a liberal-arts-based undergraduate education that prepares students to meet the complex communication challenges of the 21st century. It provides top-ranked doctoral education in its area of specialization and is a national and international leader in research and knowledge dissemination.

The department has three areas of specialization. Rhetoric and public advocacy focuses on how citizens use public argumentation and other rhetorical processes to bring about cultural, social, and political changes. Media and society focuses on modern media in their cultural, social, and political changes. Media and society focuses on how the communicative practices of relating in everyday life construct, shape, sustain, and change who we are as individuals, as well as the quality of our lives.

The Department of Communication Studies capitalizes on its diversity, both in methods and in substantive foci. It encourages exploration of the practical, social, and aesthetic dimensions of symbolic exchange and awareness of the relationships among these dimensions. The department has produced many influential scholars and artists in its areas of specialization and has been a hub for the intersection of programs and projects of the University and other institutions.

Undergraduate Programs

First-year students interested in pursuing a degree in communication studies are advised at the Academic Advising Center. Students who have earned 30 s.h. or more and who have a cumulative (University of Iowa and transfer) g.p.a. of at least 2.50 can declare the major and are advised in the department.

Bachelor of Arts

The undergraduate curriculum is designed to encourage sequential learning that progresses from a basic understanding of communication as symbolic action to intermediate and advanced courses that emphasize four approaches to communication: the practice of communication; the context of communication; communication research and criticism; and communication theory. Students who major in communication studies can choose among courses in interpersonal and group communication, media studies and production, public communication, and rhetorical studies. They may choose to focus on specific areas of the field (e.g., interpersonal communication, media studies, rhetorical studies), or to build creative combinations of course work that suit their individual learning and career goals.

Requirements

Students who seek the Bachelor of Arts in communication studies must earn a minimum of 30 s.h. in the major. Correspondence and transfer study are acceptable as long as the University and college residency requirements are met and the courses are approved by an adviser. A maximum of 15 s.h. of transfer credit may be approved.

All majors begin their studies with 036:001 Core Concepts in Communication Studies (3 s.h.). This course is prerequisite to all other major courses. It introduces core concepts and problems in the field and orients students to the organization and goals of the major.

Students complete course work in each of the following.

Practice courses 6 s.h.
Context courses 6 s.h.
A research and criticism course 3 s.h.
A theory course 3 s.h.
Advanced courses (including 3 s.h. in courses numbered 110 or above) 9 s.h.

Lists of courses approved in each area are available from the department.

Students work with their academic advisers to develop course plans that meet the major requirements and address their individual goals and interests.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s Four-Year Graduation Plan. Students who have signed the four-year graduation agreement should consult the department for details.

Before the third semester begins: at least one-quarter of the semester hours required for graduation
Before the fifth semester begins: at least two courses in the major and at least one-half of the semester hours required for graduation
Before the seventh semester begins: at least six courses in the major and at least three-quarters of the semester hours required for graduation
Before the eighth semester begins: at least eight courses in the major
During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

The department encourages outstanding undergraduates to take part in the honors program. To graduate with honors in communication studies, students must maintain a cumulative University of Iowa g.p.a. of at least 3.33, join the University Honors Program, and fulfill the following course requirements.

036:101 Honors Workshop (seminar offered fall semesters only) 2 s.h.
036:102 Honors Thesis (usually taken final semester before graduation) 3 s.h.

In special cases, independent study course work may be substituted for the Honors Workshop, with the honors director’s permission. Additional course work may be required by the student’s honors adviser.

To begin work toward a degree with honors in communication studies, students must choose a faculty member to supervise their honors project and act as their honors adviser.

Students who enroll in the honors program are eligible to take courses offered through the University Honors Program and to add an honors designation to any other departmental course by completing an agreement with the course instructor for special work in that course.

Detailed information on the honors program is available from the communication studies departmental office.

Minor

A minor in communication studies requires 15 s.h. of credit in communication studies, with a g.p.a. of at least 2.00 in those courses. The minor must include 036:001 Core Concepts in Communication Studies and at least 12 s.h. of courses taken at the University of Iowa and numbered 036:040 and above.

Internships and Forensics

The department sponsors an internship program that provides outside work experience and an active intercollegiate forensics program, the A. Craig Baird Debate forum.

Communication studies internships provide opportunities to apply communication knowledge and skills in a variety of settings, such as...
advertising, public relations, media, organizational development, politics, personnel, research, and training. Additional information about internships can be obtained from the University's Career Center.

In the forensics program, students have the opportunity to work in on-campus debates, with developmental programs designed to improve speech activities in the state, and as members of competitive intercollegiate debate teams and in individual events. Forensics scholarships are available.

**Graduate Programs**

The department offers a general M.A. in communication studies. It also offers an M.A. and a Ph.D. with specializations in interpersonal and small group communication, media studies, and rhetorical studies.

**REQUIREMENTS FOR THE M.A.**

The Master of Arts degree requires a minimum of 30 s.h., including the following:

- **036:200 Introduction to Research and Teaching** 2 s.h.
  - At least two courses numbered 200 and above (some of the department's majors programs may require more)

M.A. candidates must write a research thesis or, for the nonthesis degree, a graduate seminar paper involving significant original research. They also must successfully complete a six-hour written examination, whose scope is determined by the candidate's specialist program and graduate committee.

Students in the master's program must maintain a cumulative g.p.a. of at least 3.00 for all courses in the plan of study.

Applicants for fall semester whose application materials are received in the department by January 15 have the best chance to be admitted and receive financial aid. Admission in good standing requires an undergraduate cumulative g.p.a. of 2.75 or higher.

**REQUIREMENTS FOR THE Ph.D.**

The Doctor of Philosophy requires a minimum of 72 s.h. of graduate credit, not including the dissertation and courses required for a research skill. All students must take 036:200 Introduction to Research and Teaching, and must earn at least 10 s.h. of dissertation credit (036:399 Ph.D. Dissertation).

Candidates must successfully complete a qualifying and a predoctoral examination in their major research area and write a substantial doctoral dissertation. In addition, doctoral students must maintain a cumulative g.p.a. of at least 3.00 for all courses in the plan of study.

Individual Ph.D. programs have additional requirements. Contact the department's director of graduate studies for additional information.

Applicants for summer session and fall semester whose application materials are received in the department by January 15 have the best chance to be admitted and receive financial aid. Admission decisions are based on consideration of the applicant's undergraduate achievement, letters of reference, Graduate Record Examination (GRE) General Test results, a statement of purpose, and samples of scholarly work.

**Interpersonal and Small Group Communication**

The graduate interpersonal and small group communication program leads to the M.A. or the Ph.D. The program is centered on theory complemented by strength in both quantitative and qualitative research methods. Its focus is on scholarly issues that arise from face-to-face, everyday communication practices in interpersonal, small-group, health, and organizational contexts. It emphasizes personal relationship processes, decision making and problem solving, persuasion, culture, and issues in health communication.

The goal of the program is to produce research scholars who possess sophisticated knowledge of theory and methodology, who are careful consumers of theories and methods, and who can develop their own approaches to communication phenomena. The program emphasizes systematic analysis of the forms, functions, and meanings of messages within various contexts. Its broad social-scientific orientation springs from the belief that many methodological approaches are appropriate to studying and building theoretical explanations of communication.

Graduate students typically enter the program to earn a Ph.D. Because no two students have exactly the same interests, no two students pursue quite the same degree program. Advisers and committee members work closely with individual students to pull together course work from communication studies and other University departments, along with teaching and research experiences that will position each student to be well-qualified for the kind of employment he or she intends to seek after graduation.

**Media Studies**

The graduate program in media studies leads to the M.A. or Ph.D. degree. The program focuses on the interplay of institutions, texts, and audiences of mediated communication systems. Its central aim is to examine modern media—radio, television, advertising, music, and a wide range of other popular cultural expressions—within their historical, social, political, economic, and cultural contexts. It also uses the mass media as sites for asking basic questions about culture, society, politics, and modernity.

Like the department's other graduate programs, media studies has a strong interdisciplinary flavor. Students draw not only on allied areas in the Department of Communication Studies but on fields across the University.

**Rhetorical Studies**

The program in rhetorical studies leads to the M.A. or the Ph.D. It is built on foundation courses in classical and 20th-century rhetorical theory and in an overview of 20th-century rhetorical criticism. Courses from a rhetorical perspective include rhetorical theory, rhetorical criticism, visual rhetoric and politics, public address and public culture, studies in argumentation and freedom of speech, work in science and technology as well as academic inquiry, and historical methods. Cognate work of interest to rhetoricians also can be found in interpersonal and small group studies as well as media studies.

**DOCTOR OF PHILOSOPHY**

The program leading to the Ph.D. in rhetorical studies is designed to give candidates a mature grasp of the varied specialties and perspectives embraced by the field and to develop research competence essential to a life of productive scholarship.

Work in related departments—political science, history, sociology, English, cinema and comparative literature, anthropology, American studies, and journalism—complements rhetorical studies course offerings. Faculty from the departments of Rhetoric, Political Science, and American Studies cross-reference their courses on rhetorical topics in this program.

The Project on Rhetoric of Inquiry (POROI) offers a certificate program, allowing doctoral students to specialize in the study of how academic fields use argumentative and linguistic strategies to generate and control knowledge. Many doctoral students also do extensive work in media studies or interpersonal and small group communication to improve their range of teaching opportunities and their research skills.

**Facilities**

The Samuel L. Becker Communication Studies Building is designed specifically to meet both research and technological needs. Included are two television studios, a complete video postproduction facility, a film sound stage, a scene shop, areas for animation and graphics production, a radio studio, and an advanced 24-track audio studio that serves the needs of courses throughout the department. A large pool of equipment is available to support student work in both studio and location settings. Students and scholars also have access to a video and film library, individual viewing areas, a lab complex for experimental and survey research, and computers for research efforts. The Samuel L. Becker Communication Studies Building is one of the best facilities of its kind in higher education.

**Courses**

Courses numbered below 200 are intended primarily for undergraduates; those numbered 200 and above are for graduate students. Graduate students may take 100-level courses for credit, with approval of their committee.

To register for most courses, students must have a cumulative g.p.a. of at least 2.50. The following courses are open to all undergraduates, regardless of grade-point average: 036:017, 036:048, 036:070, 036:074, 036:143, 036:146, 036:158, and 036:159.
For Undergraduates

036:001 Core Concepts in Communication Studies 3 s.h.
Introduction to fundamental ideas in communication studies; concepts important for understanding communication in history and today.

036:002 Workshop in Debate and Forensics 3 s.h.
Public argument on questions of value and policy; opportunities for demonstration and practice in discussion and debate. Corequisite: enrollment in the National Summer Institute in Forensics.

036:010 Communicating in Public 3 s.h.
Complex forms of informative, argumentative, persuasive speaking, analysis, criticism of speaking and speakers.

036:011 Group Communication 3 s.h.
Application of group problem-solving techniques; leadership, group participation; projects in social decision, action.

036:012 Interpersonal Communication 3 s.h.
Informal social interaction between individuals; evaluation of students' own interpersonal skills.

036:013 Practicum in Debate 1 s.h.
Case construction and rotation, organization of speeches, discussion and practice of standardized format. A Craig Baird Debate Forum participation required to earn 4 s.h. Prerequisite: 036:001.

036:014 Elements of Debate 3 s.h.
Debate, debate procedures, teaching debate, directing an interscholastic debate program.

036:015 Persuasive Communication 3 s.h.
Applications of persuasive communication, persuasive speaking, persuasive messages.

036:016 Business and Professional Communication 3 s.h.
Basic concepts and skills of communication in workplace settings; interviewing, formal presentations, speechmaking, teambuilding, managing difference.

036:017 Theory and Practice of Argument 4 s.h.
Public argument as practiced in law, social science, politics, other arenas; oral argument. GE: quantitative or formal reasoning. Prerequisite: completion of General Education Program rhetoric component.

036:018 Parliamentary Procedure 1 s.h.
Rules of order for meetings of committees, clubs, organizations; making and debating motions from the floor; presiding over parliamentary sessions. Offered only through Guided Correspondence Study.

036:019 Organizational Leadership 2-3 s.h.
Focus on communication methods, motivation, parliamentary procedure. Offered only through Guided Correspondence Study.

036:020 Clothing as Nonverbal Communication 3 s.h.
How clothing connotes culture, gender, self-concept, age, occupation, values, status, tastes, sexuality; clothing for international business, children, the elderly, fashion theory. Same as 049:042.

036:021 Oral Interpretation 3 s.h.
Principles, practice of reading literary prose and poetry to inform, persuade, entertain, interpret. Prerequisite: 036:001.

036:022 Introduction to Media Production 4 s.h.
Short projects in audio and single-camera video production, emphasis on building a working knowledge of how projects are created in a real-world environment, and developing critical thinking skills about media industries. Prerequisite: sophomore standing. Same as 019:035.

036:024 Media Industry Practices 3 s.h.
Budgeting, staff, audience research, programming, promotion, sales, labor relations, government regulation, community responsibility.

036:025 Writing for Television and Radio 3 s.h.
Basic writing skills for broadcast media.

036:026 Theory and Practice of Debate 3 s.h.

036:028 Communication Studies Internship arr.
Communication skills, knowledge in work assignments related to students' academic and career interests; full- or part-time, on or off campus. Prerequisites: communication studies major and consent of instructor.

036:029 First-Year Seminar 2 s.h.
Small discussion classes taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

036:040 Communication and Conflict 3 s.h.
Implications of communication theories, conflict theories; applications to everyday life. Prerequisite: 036:061.

036:041 Gender Roles and Communication 3 s.h.
Gender roles and communication processes; function of communication in gender role development. Prerequisite: 036:061. Same as 131:041.

036:042 Intercultural Communication 3 s.h.
Relationships among culture-based assumptions, values, thought patterns, communication and practice. Prerequisite: 036:001. Same as 042:042.

036:043 Rhetoric, Science, and Technology 3 s.h.
Role of technology in contemporary culture; representation of technology in film and advertising, technology's role in the physical and biological sciences, cultural implications of the information revolution. Prerequisite: 036:061.

036:044 Rhetoric and Politics 3 s.h.
Rhetoric of campaigns at national, state, local levels; in election years, discussions with candidates, media representatives; individual investigations. Prerequisite: 036:001.

036:048 The Rise of Electronic Media 3 s.h.
Technical, economic, legal development of electronic media in the United States; embedding in social institutions such as family, nation, consumer culture.

036:051 Politics of Popular Culture 3 s.h.
Critical cultural approach to study of popular culture (e.g., television shows, movies, music); mainstream media, alternative forms of mass communication. Prerequisite: 036:001.

036:052 Introduction to Health Communication 3 s.h.
Research, concepts, and theories on communication about health; interpersonal communication in contexts of provider-patient, family, and social support; mass communication and health, including health communication campaigns, public relations, advertising, how news media and Internet present health information. Prerequisite: 036:001.

036:060 Communication Inquiry 3 s.h.
Social scientific methods used to generate knowledge about interpersonal, group, and mediated communication. Prerequisite: 036:001.

036:061 Persuasion in Society 3 s.h.
Theories of public communication, types of persuasive campaigns, movements in society, rhetorical analysis of advertising, political processes, social unrest. Prerequisite: 036:001.

036:062 Feminist Critical Practice 3 s.h.
Feminist approaches to communicative practices. Prerequisite: 036:001.

036:064 Media, Advertising, and Society 3 s.h.
Media activities in contemporary culture; marketing to ethnic, class, gender groups. Prerequisite: 036:001.

036:065 Television Criticism 3 s.h.
Television form and content; roles of industry, audience, and textual conventions in defining the medium. Prerequisite: 036:001.

036:066 Media Audiences 3 s.h.
Historical survey of major methods in mass communication and cultural studies that are used to understand effects of media on audiences; student projects involving audience research and analysis. Prerequisite: 036:001.

036:068 Popular Music and Culture 3 s.h.
What makes popular music important for people; music's power to change culture; production, distribution, reception of popular in cultural and historical contexts.

036:070 Communication and Everyday Life 3 s.h.
Theory, research, on basic skills, processes in everyday communication. GE: social sciences.

036:071 Communication and Contemporary Culture 3 s.h.
Social/cultural rules that govern contemporary communication patterns; methods for analyzing systems of discourse. Prerequisite: 036:001.

036:072 The Classical Tradition in Rhetoric 3 s.h.
Basic concepts in classical rhetoric applied to contemporary rhetorical performance; occasions for public speaking, kinds of speeches, traits of good speakers, successful lines of argument, rhetorical figuration, use of emotion in persuasion. Prerequisite: 036:001.

036:073 Public Argument 3 s.h.
Theories of argument contexts, practices, and strategies in public controversies. Prerequisite: 036:001.

036:074 Media and Society 3 s.h.
Processes and effects of mass communication; how mass media operate in the United States; how mass communication scholars develop knowledge. GE: social sciences.

036:075 Gender, Sexuality, and Media 3 s.h.
Media as a site for theorizing gender, sexuality, identity. Prerequisite: 036:001.

036:076 Race, Ethnicity, and Media 3 s.h.
Principal debates in media criticism about representation, circulation, and commodification of popular images of race and ethnicity. Prerequisite: g.p.a. of at least 2.50 and 036:001.

036:080 Radio Production 3 s.h.
The studio as a production resource; radio production forms and practices; multicasting recording and mixing, tape editing. Prerequisites: 036:001 and 036:022.

036:081 Television Production 3 s.h.
The studio as a production facility; interview, news show, demonstration, other formats typical of local station or cable operation. Prerequisites: 036:001 and 036:022.

036:082 Sound and Video Documentary 3 s.h.
Nonfiction forms and practices in historical context. Prerequisite: 036:001 and 036:022.

036:083 Cultural History of Radio 3 s.h.
Development of radio as a sociocultural system. Prerequisite: 036:048.

036:084 Cultural Approaches to Mass Communication 3 s.h.
Methods of conceiving, observing, and analyzing media artifacts, processes, politics. Prerequisite: one course from 036:040/036:051.

036:085 Media Industries and Organizations 3 s.h.
Industry economics and organizational practices as contexts for media production. Prerequisite: 036:024 or 036:048 or 036:066 or 036:074.

036:086 Global Media Studies 3 s.h.
Development of media systems, content strategies, and audience formations internationally, comparatively. Prerequisite: one course from 036:040/036:051.

036:087 Culture and Intellectual Property Law 3 s.h.
Construction of gender identity and sexuality in media representations, organizations, audiences. Prerequisite: 036:001.

036:088 Mass Communication and American Democracy 3 s.h.
Philosophical foundations of American democracy; focus on contemporary issues of news, media and politics, culture, technology, freedom of speech. Prerequisite: one course from 036:070/036:075.

036:089 Nonverbal Communication 3 s.h.
Theoretical approaches to nonverbal communication as it occurs in everyday context and situations. Prerequisite: one course from 036:070/036:075.

036:090 Communication Internship 3 s.h.
Practical experience in a communication internship setting. Prerequisites: 036:022.
Graduate students also may take 100-level courses for credit, with approval of their committee.

036:200 Introduction to Research and Teaching 2 s.h.
Communication studies as a field of scholarship; selection of research problems, major lines of research represented in the department, bibliographic tools for scholarship in the field.

036:201 Techniques of Teaching 1 s.h.

036:210 Introduction to Rhetorics of Inquiry 2-4 s.h.
Practice in invention and arrangement of academic prose through peer criticism; exemplars and across disciplinary boundaries. Same as 160:200.

036:220 Rhetorical Criticism 3 s.h.
Approaches to rhetorical analysis of communicative artifacts, acts, events; rhetorical-critical essay writing. Same as 010:230.

036:221 American Public Address: Gilded Ages Through Vietnam 2-4 s.h.
Discourse in legislatures, law courts, public gatherings, pamphlets, newspapers.

036:222 Feminist Cultural Studies 3 s.h.

036:240 Media Criticism 3 s.h.
Focus on television, video.

036:241 Theories of Mass Communication 3 s.h.
Major concepts, theories, schools of thought in media studies, mass communication.

036:242 Studies and Practices of Audio and Video Production 3 s.h.
Introduction to audio and video production; acquisition of a production tool, critical vocabulary, teaching introductory production courses. Prerequisite: advanced graduate standing.

036:270 Health Communication 3 s.h.
Same as 172:240.

036:299 Graduate Independent Study 2-4 s.h.

036:310 Classical Rhetoric 2-4 s.h.
Discourse in the ancient world. Same as 008:267, 010:301, 208:230.

036:311 Modern Rhetoric 2-4 s.h.
Same as 008:268.

036:312 Rhetoric and Philosophy 2-4 s.h.
Contemporary philosophical approaches to the study of rhetoric.

036:313 Rhetoric and Argument Theory 2-4 s.h.
Approaches to study of argumentation, key issues at dispute in contemporary conceptualizations of argument.

036:315 Rhetorics of Technology and Technoscience 2-4 s.h.
Survey of the roles and situations involving technology, rhetorical criticism of technological and technoscientific discourses; evaluation and construction of theories about technological discourses and practices. Same as 160:307.

036:316 Foundations for Feminist Inquiry II 3 s.h.
Prerequisite: consent of instructor. Same as 010:201, 131:201.

036:317 Current Issues in Rhetoric 3 s.h.

036:330 Reading Group 1-2 s.h.
Analysis and discussion of important texts in rhetorical theory and criticism. Repeatable.

036:331 Studies in Language Theory 2-4 s.h.
Semiotics, speech acts, philosophy of language; emphasis on their relationship to rhetoric. Same as 008:308.

036:332 Visual Political Rhetoric 1-4 s.h.
Theoretical and critical studies of visual political discourse.

036:334 Seminar: Comparative Disciplinary Rhetorics 2-4 s.h.
Conceptual and conventional differences between discourses in various fields of inquiry; role of rhetoric in establishing conditions and criteria of successful disciplinary argument. Same as 160:505.

036:335 Seminar: Contemporary Rhetorical Studies 2-4 s.h.
Problems in contemporary rhetorical studies; may include works of Kenneth Burke, Wayne Booth, deconstructionists, feminist theorists and critics, critics of communication technologies.

036:336 Seminar in Rhetorical Theory 1-4 s.h.
Same as 010:600.

036:337 Seminar: Public Address 1-4 s.h.
History, criticism of discourse addressed to the public; periods, approaches.

036:338 Seminar: History of Rhetorical Theory 1-4 s.h.

036:339 Seminar: Rhetoric and Culture 1-4 s.h.
Cultural theorists; their utility in accounting for communication practices.

036:340 Media and Modernity 3 s.h.
Cultural, social, environmental consequences of 19th- and 20th-century media.

036:341 Topics in Mass Communication Scholarship 1-3 s.h.
Theory and research on problems in mass communication.

036:342 Communication and Community 3 s.h.
How communication and community make each other possible, limit each other; how changing communication technologies affect community; how changing community structures affect communication.

036:343 Rise and Fall of the American TV Networks 3 s.h.
Conditions supporting American television's 30-year dominance by a commercial broadcast network oligopoly; the oligopoly's decline, the relationship between such institutional changes and television's cultural roles.

036:344 Studies in Popular Culture 3 s.h.
Popular culture in relationship to folklore, social structure, economic development, and formation of mass-mediated cultures; materialism, forms of resistance, popular historical memory.

036:346 The Public Sphere 3 s.h.
Theorists, intellectual history, critics, contemporary issues of the public sphere.

036:347 Nationalism as a Communication Process 3 s.h.
National building and construction of national identity as a problem in communication history and theory; the nation as a community constructed through discourse, role of the state and other social forces in creating and deploying nationalist discourse.

036:350 Seminar: Mass Communication 1-4 s.h.

036:351 Global Media Seminar 3 s.h.
Theorists and processes of globalization and the cultural implications of media globalization, local responses to globalizing processes with reference to questions of modernity and national/ transnational identity.

036:352 Seminar: Media Theory 3 s.h.

036:353 Seminar: Intellectual Property 3 s.h.
Areas of cultural production that have been affected by intellectual property law, notions of authorship and ownership that lie at the heart of intellectual property law, how they affect varied areas of cultural production.

036:370 Quantitative Research Methods 3 s.h.
Primary methods for conducting quantitative research on interpersonal and group communication.
036:371 Communication Theory 3 s.h.
Survey of primary theories of interpersonal, cultural, group, and organizational communication.

036:372 Qualitative and Ethnographic Research Methods 3 s.h.
Qualitative methods used by ethnographers and interpretive researchers, including participant observation, field interviewing.

036:373 Persuasion Theory and Research 3 s.h.
Traditional social scientific approaches to research and theory; development of a cultural perspective on persuasion.

036:374 Relational Communication Theory and Research 3 s.h.
Communication in initiation, development, maintenance, breakdown, and repair of social and personal relationships.

036:375 Ethnography of Communication 3 s.h.
Research and theory on face-to-face communication, from ethnomethodology to conversational perspective.

036:376 Family Communication 3 s.h.
Theory and research on communication among and between family members (parents, children, marital partners, siblings); quantitative and qualitative research.

036:377 Organizational Communication Theory and Research 3 s.h.
Theory and research on communication in groups; same as 017:277.

036:378 Critical Ethnography 3 s.h.
Same as 010:332, 160:332.

036:379 Health Communication Campaigns 3 s.h.
Design and analysis of health campaigns blending theory, practice, and methods to critique past, present, and future campaigns; mass media, community, organization, and interpersonal campaigns. Same as 172:246.

036:380 Seminar: Dialogic Communication Research 3 s.h.
Dialogic approaches to communication, including Bakhtin and Buber.

036:381 Seminar: Topics in Communication Research 3 s.h.
Topics vary.

036:382 Seminar: Group Communication Issues in group communication.

036:383 Seminar: Constructs, Communication, and Identity 3 s.h.
Concepts of identity and sociality in George Kelly's Personal Construct Theory; their connection to theories of rhetoric, especially Burke, and social community, especially Mead.

036:395 Research Practicum arr.
Individual projects.

036:399 Ph.D. Dissertation arr.

Undergraduate Programs

Requirements for the major in computer science have changed. Students who entered the college in summer 2004 or who declared or entered the major on or after the first day of fall semester 2004 must complete the programs described below. Students who declared or began the major before the first day of fall semester 2004 may choose to complete the old requirements, but they must complete all requirements and graduate by August 2008. Requirements for the minor also have changed. Students should consult the department if they are interested in the computer science minor.

Undergraduates majoring in computer science develop competence in programming principles and methodologies, problem-solving techniques, mathematics, and computer systems. Computer science training is critical for many careers in science, engineering, and business.

The department offers both Bachelor of Arts and Bachelor of Science degrees. Of the two, the B.S. program provides more intensive concentration in computer science and greater emphasis in science and mathematics. Students interested in pursuing graduate work in computer science should strongly consider seeking the B.S. degree. The B.A. program requires fewer courses in computer science and mathematics, allowing for a wider choice of electives.

Both the B.A. and B.S. degrees provide students with the necessary training for employment in careers such as software development and information management. Students who do not want to pursue a computer science career should consider a computer science minor to gain fundamental knowledge of the use and applications of computers. The department encourages students in both the B.A. and B.S. programs to consider adding another major, certificate, or minor to their graduation plans.

Students may declare a major in computer science and be admitted to the department's B.A. or B.S. program at any time on or after admission to the University. After admission to the major, students need to maintain a g.p.a. of 2.00 or higher in all course work to receive a degree in computer science. All computer science students are advised at the Academic Advising Center until they have completed 22C:019 or until they have earned 90 s.h. Students who are being advised at the advising center also may consult with computer science faculty members.

Transfer students who have taken a course approved as equivalent to one of the computer science courses are exempt from that course, provided the transfer grade is no lower than B. Such transfer grades are used in computing the computer science grade-point average.

Majors should consult the department's Computer Science Undergraduate Handbook, available on the department's web site. The handbook details department policies, suggests possible elective areas, and discusses the Cooperative Education Program and student groups, such as the University's chapter of the Association for Computing Machinery and Women in Computer Science.

Advanced Placement
The Computer Science Advanced Placement Program test can be used to gain credit for elective semester hours. See the Computer Science Undergraduate Handbook for more details.

Bachelor of Arts

The B.A. program is designed for students who wish to gain considerable knowledge in computer science and have flexibility in selecting electives. Students preparing for computer careers in business may pursue the B.A., but they are encouraged to supplement the basic requirements with additional computer science courses. The flexibility of the program makes it suitable for combination with other majors.

The B.A. requires a minimum of 41 s.h.

All students must complete the College of Liberal Arts and Sciences General Education Program. Students who are enrolled in the B.A. program but who might switch to the B.S. program should choose their natural science courses carefully; see “Natural Science Sequences” under “Bachelor of Science.”

The B.A. program requires the following core courses. They may not be taken pass/nonpass. Students also must take one advanced computer science elective.

COMPUTER SCIENCE CORE
All of these:
22C:016 Computer Science I: Fundamentals 4 s.h.
22C:019 Discrete Structures 3 s.h.
22C:021 Computer Science II: Data Structures 4 s.h.
22C:022 Object-Oriented Software Development 4 s.h.
22C:031 Algorithms 3 s.h.
22C:111 Programming Language Concepts 3 s.h.

One of these:
22C:060 Computer Organization 3 s.h.
055:035 Computer Architecture and Organization 3 s.h.

One of these:
22C:112 Operating Systems 3 s.h.
22C:113 Introduction to Systems Software 3 s.h.
22C:118 Introduction to Networks and Their Applications 3 s.h.

MATHEMATICS CORE
Calculus I—one of these:
22M:021 Calculus and Modeling I 4 s.h.
22M:025 Calculus I 4 s.h.
22M:031 Engineering Mathematics I: Single Variable Calculus 4 s.h.

Calculus II—one of these:
22M:022 Calculus and Modeling II 4 s.h.
22M:026 Calculus II 4 s.h.
22M:032 Engineering Mathematics II: Multivariable Calculus 4 s.h.
Linear algebra/probability and statistics—one of these:
22M:027 Introduction to Linear Algebra 4 s.h.
22M:047 Linear Algebra and Differential Equations for Scientists 3 s.h.
22S:039 Probability and Statistics for the Engineering and Physical Sciences 3 s.h.
22S:043 Engineering Probability and Statistics 3 s.h.
22S:120 Probability and Statistics 4 s.h.

ADVANCED ELECTIVES
Bachelor of Arts students must earn at least 3 s.h. in advanced electives.
22C:072/22M:072 Elementary Numerical Analysis 3 s.h.
22C:099 Honors in Computer Science (may be counted only once as an advanced course) arr.
Any 100-level computer science course except 22C:104 and 22C:109

With instructor’s approval, most 22C courses numbered above 200 may be counted as advanced courses.

Bachelor of Science

The B.S. program is more rigorous than the B.A. and is designed to give in-depth training suitable for students who may wish to pursue graduate work in computer science. However, the choice between the B.A. or the B.S. should be dictated by students’ personal career goals. The B.S. is not required for graduate study, and many students not interested in graduate study may choose the B.S. degree to enhance their skills and job prospects.

The B.S. program requires a minimum of 64 s.h.

All students must complete the College of Liberal Arts and Sciences General Education Program. When chosen carefully, courses that complete the General Education Program natural sciences component also will satisfy the departmental natural science sequence requirement as described below.

Students complete all department requirements for the B.A. They also must complete an additional mathematics course, a course on computation theory, another computer science elective, two technical electives, and the natural science requirement. These courses cannot be taken pass/nonpass. Students with certain special elective programs may petition for additional courses to be accepted for this requirement.

MATHEMATICS

COMPUTER SCIENCE CORE
All of these:
22C:016 Computer Science I: Fundamentals 4 s.h.
22C:019 Discrete Structures 3 s.h.
22C:021 Computer Science II: Data Structures 4 s.h.
22C:022 Object-Oriented Software Development 4 s.h.
22C:031 Algorithms 3 s.h.
22C:111 Programming Language Concepts 3 s.h.

One of these:
22C:060 Computer Organization 3 s.h.
05S:035 Computer Architecture and Organization 3 s.h.

One of these:
22C:112 Operating Systems 3 s.h.
22C:113 Introduction to Systems Software 3 s.h.
22C:118 Introduction to Networks and Their Applications 3 s.h.

MATHEMATICS CORE

Calculus I—one of these:
22M:021 Calculus and Modeling I 4 s.h.
22M:025 Calculus I 4 s.h.
22M:031 Engineering Mathematics I: Single Variable Calculus 4 s.h.

Calculus II—one of these:
22M:022 Calculus and Modeling II 4 s.h.
22M:026 Calculus II 4 s.h.
22M:032 Engineering Mathematics II: Multivariable Calculus 4 s.h.

Linear algebra—one of these:
22M:027 Introduction to Linear Algebra 4 s.h.
22M:047 Linear Algebra and Differential Equations for Scientists 3 s.h.

Probability and statistics—one of these:
22S:039 Probability and Statistics for the Engineering and Physical Sciences 3 s.h.
22S:043 Engineering Probability and Statistics 3 s.h.
22S:120 Probability and Statistics 4 s.h.

Any other probability and statistics course with a calculus prerequisite, as approved by a computer science adviser

ADVANCED ELECTIVES
Bachelor of Science students must earn at least 6 s.h. in advanced electives.
22C:072/22M:072 Elementary Numerical Analysis 3 s.h.
22C:099 Honors in Computer Science (with adviser’s approval) arr.
Any 100-level computer science course except 22C:104 and 22C:109

With instructor’s approval, most 22C courses numbered above 200 may be counted as advanced courses.

COMPUTATION THEORY

One of these:
22C:131 Limits of Computation 3 s.h.
22C:135 Theory of Computation 3 s.h.

TECHNICAL ELECTIVES
Bachelor of Science students must earn 6 s.h. in technical electives. Advanced elective courses in computer science or 100-level courses in any other department, approved by an adviser, can be counted as technical electives. The list of approved technical electives is posted on the department’s web site.

NATURAL SCIENCE SEQUENCES
For the B.S., students take two or more courses in a sequence required of majors in a chosen area of natural science. The first course must be a prerequisite or corequisite to the second. This study is intended to enhance the student’s perspective by providing a deeper understanding of the scientific method. It is typical, but not required, that these courses be taken in the same science department. This cognate sequence must total at least 7 s.h. Students often choose courses that also will complete the General Education Program natural sciences component. Some possible choices are listed below; the computer science adviser may approve others.

C Wong/APP credit may be used to satisfy part or all of the natural science requirement only if the appropriate science department at The University of Iowa accepts the credit as equivalent to one or more of the specific courses listed below.

Astronomy
029:061 General Astronomy 4 s.h.
029:062 General Astronomy 4 s.h.

Biology/Chemistry
002:010 Principles of Biology I 4 s.h.
002:011 Principles of Biology II 4 s.h.
004:011 Principles of Chemistry I 4 s.h.

Chemistry
004:011 Principles of Chemistry I 4 s.h.
004:012 Principles of Chemistry II 4 s.h.

Geography
044:003 Introduction to Earth Systems Science 4 s.h.
044:005 Foundations of GIS 3 s.h.

Geoscience
012:005 Introduction to Geology 4 s.h.
012:008 Introduction to Environmental Science 3 s.h.

Physics
One of these sequences; 029:011 029:012 College Physics (this option is not encouraged) 8 s.h.
029:027 029:028 Physics I-II 8 s.h.
029:081 029:082 Introductory Physics I-II 8 s.h.

Four-Year Graduation Plan

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

Bachelor of Arts

Before the third semester begins: math through calculus I, three courses in the major (e.g., 22C:016, 22C:019, and 22C:021), and at least one-quarter of the semester hours required for graduation.

Before the fifth semester begins: math through calculus II, two more courses in the major (e.g., 22C:022 and 22C:060), and at least one-half of the semester hours required for graduation.
Before the seventh semester begins: at least three-quarters of the semester hours required for graduation.

Before the eighth semester begins: at least one more course in the major.

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

Bachelor of Science

These checkpoints do not include the required natural science sequence, which students usually complete as part of their General Education Program natural science component.

Before the third semester begins: math through calculus I, three courses in the major (e.g., 22C:016, 22C:019, and 22C:021), and at least one-quarter of the semester hours required for graduation.

Before the fifth semester begins: math through calculus II, at least two more courses in the major (e.g., 22C:022 and 22C:060), and at least one-half of the semester hours required for graduation.

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

Before the eighth semester begins: at least two more courses in the major.

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

Honors

In order to pursue honors study in the Department of Computer Science, students must be members of the University Honors Program, which requires them to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information).

To graduate with honors in computer science, students must complete 4-6 s.h. of 22C:099 Honors in Computer Science and submit an acceptable honors thesis. (The course 22C:099 can count as one elective for the B.S.) To take 22C:099, students obtain the consent of a computer science faculty member. The faculty member must know the nature of the intended project for the honors thesis and a plan or timetable for the work. Students are responsible for finding a faculty member willing to supervise their honors project. See the Computer Science Undergraduate Handbook for details.

Minor

The minor in computer science requires the following courses, for a minimum of 18 s.h.

22C:016 Computer Science I: Fundamentals 4 s.h.
22C:019 Discrete Structures 3 s.h.
22C:021 Computer Science II: Data Structures 4 s.h.
22C:022 Object-Oriented Software Development 4 s.h.
One computer science elective 3 s.h.

Any computer science course except 22C:001, 22C:002, 22C:104, and 22C:109 may be used as an elective, including any course numbered 100 or above. Courses numbered 200 or above may be used with consent of instructor. To avoid repetition, 22C:005 may be used as an elective only if taken before 22C:016.

No course accepted toward the minor may be taken pass/nonpass. Students must have a g.p.a. of at least 2.00 on all work attempted in the minor.

Students in electrical and computer engineering who have completed 057:006, 057:017, and 055:033 are considered to have satisfied the requirements for 22C:016 and 22C:022; they receive 8 s.h. of credit toward a computer science minor.

Students may apply a maximum of 6 s.h. of transfer course work toward the minor. Students excused from the minor courses may substitute other computer science electives.

Students apply for a minor in computer science when they apply for a degree.

Graduate Programs

The department offers three graduate degree programs: Master of Computer Science (M.C.S.), Master of Science (M.S.), and Doctor of Philosophy (Ph.D.).

The M.C.S. is a non-research, course-based program for students who seek to enhance their careers with advanced knowledge of computer science. The M.S. degree is usually granted to students working toward the Ph.D., which emphasizes preparation for research, teaching, and scholarly endeavor in academic settings or private, industrial, or government laboratories.

Admission decisions are based on prior academic performance, letters of reference, scores on the Graduate Record Examination, and the applicant’s statement about background and purpose. Students need not have a master’s degree either to begin the Ph.D. program or to be eligible to receive the Ph.D. A student admitted without a master’s degree may choose to receive an M.S. while working toward the doctorate. Most graduate students are admitted to the M.C.S. or Ph.D. programs; direct admission to the M.S. program is rare.

Current and prospective graduate students should consult the Department of Computer Science Graduate Handbook, available from the department office or on the department’s web site. The handbook provides detailed information about specific degree requirements, such as required courses, examinations, and dissertation requirements. General information about the department, its faculty, and research activities is also available on the department’s web site.

Master of Computer Science

The M.C.S. requires a minimum of 32 s.h.

Students must complete at least 26 s.h. at The University of Iowa, including 8 s.h. in residence at the University.

Basic M.C.S. requirements are as follows. Consult the Department of Computer Science Graduate Handbook for more detailed information about M.C.S. degree requirements and graduate study policies.

ALGORITHMS AND THEORY

One of these:
22C:131 Limits of Computation 3 s.h.
22C:135 Theory of Computation 3 s.h.
22C:231 Design and Analysis of Algorithms 3 s.h.

SYSTEMS

One of these:
22C:160 High Performance Computer Architecture 3 s.h.
22C:162 Advanced Operating Systems 3 s.h.
22C:166 Distributed Systems and Algorithms 3 s.h.
22C:168 Computer Communications 3 s.h.
22C:181 Formal Methods in Software Engineering 3 s.h.
22C:185 Programming Language Foundations 3 s.h.
22C:186 Introduction to Compiler Construction 3 s.h.

COLOQUIUM

All M.C.S. students earn at least 2 s.h. in 22C:399 Research Seminar: Colloquium Series.

ELECTIVES

M.C.S. students should fill their remaining 24 s.h. with a combination of computer science graduate courses, reading and project courses, and non-computer science graduate courses approved by their adviser.

Students must take at least six computer science graduate courses (18 s.h.), excluding 22C:190 through 22C:199, 22C:290 through 22C:299, and 22C:390 through 22C:399. They may take only one computer science graduate course (3 s.h.) numbered 22C:190 through 22C:199, 22C:290 through 22C:299, or 22C:390 through 22C:399.

Students may not count computer science graduate courses numbered 22C:101 through 22C:119 toward the elective requirement.

Students may count no more than two non-computer science graduate courses (6 s.h.) of a technical or quantitative nature, approved by their adviser, toward the elective requirement.

Master of Science

The Master of Science is usually offered only to students working toward a Ph.D. in computer science. Students who are interested primarily in a master’s degree and do not intend to pursue a more advanced degree should apply to the M.C.S. program.
Doctor of Philosophy

The Ph.D. requires a minimum of 72 s.h., three examinations (qualifying, comprehensive, and final), and a dissertation. Basic Ph.D. requirements are as follows. Consult the Department of Computer Science Graduate Handbook for more detailed information about Ph.D. degree requirements and graduate study policies.

ALGORITHMS AND THEORY
Both of these:
22C:231 Design and Analysis of Algorithms 3 s.h.
22C:135 Theory of Computation 3 s.h.

BREADTH
Ph.D. students must complete at least three of the following courses, with at least one course selected from each area (9 s.h.).

Systems and software:
22C:160 High Performance Computing Architecture 3 s.h.
22C:162 Advanced Operating Systems 3 s.h.
Networks and distributed systems:
22C:166 Distributed Systems 3 s.h.
22C:168 Computer Communications 3 s.h.
Programming languages and compilers:
22C:181 Formal Methods in Software Engineering 3 s.h.
22C:185 Programming Language Foundations 3 s.h.
22C:186 Introduction to Compiler Construction 3 s.h.

PRACTICE
Ph.D. students must complete at least one course (3 s.h.) having significant practical or implementation-oriented content. Each semester the department designates courses that satisfy this requirement. The following are typical selections.

22C:144 Database Systems 3 s.h.
22C:145 Artificial Intelligence 3 s.h.
22C:151 Computer Graphics 3 s.h.
22C:165 Parallel Programming 3 s.h.
22C:174 Optimization Techniques 3 s.h.
22C:177 Parallel and High Performance Algorithms in Scientific Computing 3 s.h.
22C:180 Fundamentals of Software Engineering 3 s.h.
22C:198 Individual Programming Projects 3 s.h.

COGNATE AREA
Ph.D. students are required to select, in consultation with their adviser, a total of 9 s.h. in courses that constitute coherent coverage of an external cognate area. Choices include, but are not limited to, mathematics, statistics, genetics, biology, and engineering disciplines.

COLLOQUIUM
Ph.D. students earn at least 4 s.h. in 22C:399 Research Seminar: Colloquium Series.

ELECTIVES
Ph.D. students should fill their remaining semester hours with a selection of computer science graduate courses (excluding those numbered 22C:101 through 22C:119) and non-computer science graduate courses approved by their adviser.

QUALIFYING EXAM
Ph.D. students are required to pass a qualifying examination by the end of their second year of graduate study. Once students select a topic in consultation with their adviser, they are assigned a three-member faculty examination panel by the department. Then they prepare a written prospectus for review by the committee, followed by an oral presentation.

COMPREHENSIVE EXAM
The comprehensive examination is an evaluation of the student’s mastery of a research area at or near completion of formal course work, and before preparation of the dissertation. The exam may be written, oral, or both, at the department’s discretion, and is administered by a faculty committee. The comprehensive exam typically should be completed by the end of the student’s third year and no later than the end of the fourth year in the Ph.D. program.

DISSERTATION
Each Ph.D. student must write a dissertation, a significant, original contribution to the field of computer science. Once students obtain some preliminary results and can identify and describe the boundaries of their dissertation, they prepare a written proposal for their committee’s review. The dissertation must be prepared in accordance with the format specified in the Graduate College’s Thesis Manual.

FINAL ORAL EXAMINATION
Once the dissertation is complete and has been reviewed by the student’s committee, a final oral examination is administered on campus. This examination must take place no sooner than the semester following successful completion of the comprehensive examination and no later than five years after completion of the comprehensive exam.

Graduate Service Courses

Competence and exposure to computer science is not only useful, it is often a prerequisite to advanced study and research in many disciplines. For most graduate students from other disciplines, an appropriate first course is 22C:104 A Practical Introduction to Computer Science.

Courses

Primarily for Nonmajors

Computer science students may not earn degree credit for 22C:104 and 22C:109.

22C:001 Computer Literacy 3 s.h.
Computer literacy: names, uses, limitations of computers and computing; impact of computer technology on society; privacy, ethics, security; overview of computer organization; introduction to applications, including communications, word processing, desktop publishing, spreadsheets, graphics, databases, World Wide Web. Prerequisite: closed to computer science majors and students who have completed a higher numbered 22C: course or 06K:070.

22C:002 First-Year Seminar 1-2 s.h.
Small discussion class taught by a faculty member, topics chosen by instructor, may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

22C:005 Introduction to Computer Science 3 s.h.
Broad overview, programming, algorithmic problem solving and analysis, hardware, operating systems, networks, graphics, databases. GE: quantitative or formal reasoning. Prerequisite: closed to students who have completed a computer science course numbered 22C:016 or above.

22C:104 A Practical Introduction to Computer Science 3 s.h.

Fundamental aspects of computer science for nonmajors; introduction to programming, history of computing, computer architecture and operating system concepts, fundamentals of databases and algorithms. Prerequisite: closed to computer science majors. Same as 185:104.

22C:109 Programming Languages and Tools 3 s.h.
Varied programming languages and tools. Prerequisite: some programming (e.g., 22C:005, 22C:016, or 22C:104) or consent of instructor.

For Undergraduate Majors and Minors

22C:016 Computer Science I: Fundamentals 4 s.h.
Programming using Java with emphasis on software engineering practice, programming constructs, data types, problem-solving strategies, data structures, object-oriented programming. GE: quantitative or formal reasoning. Prerequisites: 22M:005, and MPT II score of 20 or higher or MPT III score of 10 or higher.

22C:019 Discrete Structures 3 s.h.
Mathematical methods used in computer science, including logic, proof techniques (with induction), functions, relations, algorithm analysis, recurrence relations, counting methods, combinatorics, graphs, trees. Prerequisite: grade of C- or higher in 22C:016. Recommended: calculus I.

22C:021 Computer Science II: Data Structures 4 s.h.
Design, implementation and analysis of data structures and algorithms, including linked lists, stacks, queues, hash tables, trees, graph, complexity analysis, recursion, dynamic data structures. Prerequisite: grade of C- or higher in 22C:016. Pre- or corequisite: 22C:019.

22C:022 Object-Oriented Software Development 4 s.h.
Object-oriented design and software development methodology; team programming projects; GUIs, event handling, network programming, concurrency, data representation, IO programming. Prerequisite: grade of C- or higher in 22C:016. Pre- or corequisite: 22C:019.

22C:031 Algorithms 3 s.h.
Algorithm design techniques (divide and conquer, dynamic programming, greedy) and analysis techniques (big O notation, recurrence). Sorting (merge sort, heap sort, quicksort); searching (B-trees, AVL trees or red black trees, hashing); basic graph algorithms (depth-first and breadth-first search, minimum spanning tree, shortest path); NP-completeness. Prerequisites: grade of C- or higher in 22C:021, and 22M:021 or 22M:025 or 22M:031.

22C:060 Computer Organization 3 s.h.
Computer building blocks: representing data, computer arithmetic, instruction sets, assembly language, digital logic, control units, ALU design, register operations, memory organization, IO. Prerequisite: grade of C- or higher in 22C:021.

22C:072 Elementary Numerical Analysis 3 s.h.
Computer arithmetic, rounding, polynomial approximation, numerical integration, systems of linear equations, ordinary differential equations; use of higher-level computer languages such as Mathematica. Prerequisite: grade of C- or higher in 22M:022 or 22M:025. Same as 22M:072.

22C:096 Topics in Computer Science arr.
Complement to material in other courses. Prerequisite: consent of instructor.

22C:099 Honors in Computer Science arr.
Individual projects. Prerequisite: computer science major, honors standing, and consent of instructor.

For Advanced Undergraduate Majors

Computer science graduate students may not earn degree credit for these courses.

22C:106 Computer Science I 3 s.h.

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22C:111 Programming Language Concepts 3 s.h.
Introduction to formal, functional, and logical programming languages, and differences between them; syntax specification, types, control structures, recursion, data abstraction. Prerequisite: grade of C- or higher in 22C:019, 22C:021, and 22C:022.

22C:112 Operating Systems 3 s.h.
Introduction to modern operating systems, including device control, memory management and addressing, process scheduling, interprocess communication, interrupts, synchronization, security. Prerequisite: grade of C- or higher in 22C:060.

22C:113 Introduction to Systems Software 3 s.h.
Design and implementation of system software, including operating systems and program support software (assemblers, compilers, linkers, loaders); process, memory, message management. Prerequisite: grade of C or higher in 22C:060.

22C:114 Computer Science II 3 s.h.

22C:115 Computer Science III 3 s.h.

22C:118 Introduction to Networks and Their Applications 3 s.h.
Introduction to networks and the development of network applications; basic concepts of network communication common to applications; multithreaded programming and multiplayer games. Prerequisite: grade of C- or higher in 22C:060.

For Advanced Undergraduate and Graduate Students

22C:131 Limits of Computation 3 s.h.
Turing machines, undecidability and complexity reductions; Cook's theorem and NP-completeness, approximation algorithms and randomized algorithms. Prerequisite: grade of C- or higher in 22C:031 or equivalent.

22C:135 Theory of Computation 3 s.h.
Finite automata, regular languages and regular expressions; context-free grammars, context-free languages; relationships between formal languages and automata; undecidability and its consequences. Prerequisite: grade of C- or higher in 22C:031 or equivalent.

22C:137 Theory of Graphs 3 s.h.
Connectivity properties, including Euler, Hamilton cycle problems; graph colorings, matchings; characterization of families of graphs such as trees, planar graphs, networks; graph algorithms, their applications. Prerequisites: grade of C- or higher in 22M:050 or equivalent. Same as 22M:152.

22C:144 Database Systems 3 s.h.
Introduction to database systems including querying using SQL, design using ER diagrams, programming using JDBC and SQL; programming using a DBMS and its databases and applications. Prerequisites: grade of C- or higher in 22C:021 and 22C:022 or equivalents.

22C:145 Artificial Intelligence 3 s.h.
Introduction to artificial intelligence covering problem-solving methods, heuristic search, knowledge representation, automated reasoning, planning, game playing, machine learning, and neural networks. Prerequisite: grade of C- or higher in 22M:050 or equivalent. Same as 22M:152.

22C:146 Introduction to Computational Linguistics 3 s.h.
Introduction to computational linguistics with focus on theory and practice of natural language processing and syntactic and semantic analysis. Same as 103:140.

22C:151 Computer Graphics 3 s.h.
Introduction to computer graphics algorithms and techniques, with emphasis on interactive 3-D graphics, coordinate systems and transformations, rendering, shading, lighting, texture, bump, environment mapping, animation, ray tracing, radiosity. Prerequisites: grade of C- or higher in 22C:031 and 22M:027, or equivalents.

22C:160 High Performance Architecture 3 s.h.
Processor architectures: Von Neumann machine, evolution of instruction set design, RISC and CISC, instruction set architecture of instruction set, microprogramming, storage systems—cache, main and secondary memory, virtual memory, I/O organizations; CPU design—instruction, arithmetic pipelines; high performance computers, array and vector processors, shared memory and distributed memory multiprocessing; case studies from historic, current architectures. Prerequisite: grade of C- or higher in 22C:112 or 22C:113 or equivalent. Same as 055:132.

22C:162 Advanced Operating Systems 3 s.h.
Operating system functions and requirements, distributed programming, interprocess communication, synchronization constructs: semaphores, sockets, monitors, remote procedure calls; management, protection, security of multilayered resources. Prerequisite: grade of C- or higher in 22C:031, 22C:111, and 22C:112 or 22C:113; or equivalents.

22C:165 Parallel Programming 3 s.h.
Parallel computations: concepts, design, implementation; performance evaluation; concepts of process, parallel algorithms, language and architectural supports; development, running of parallel programs on available parallel machines. Prerequisite: grade of C- or higher in 22C:019, 22C:021, or equivalent.

22C:166 Distributed Systems and Algorithms 3 s.h.
Models of distributed systems, program correctness—safety and liveness properties, causality, logical and vector clocks, mutual exclusion, distributed snapshots, distributed algorithms for graph-theoretic problems, fault-tolerance—masking versus nonmasking types, checkpointing, stabilization, concurrency control, fault-tolerant broadcast and multicast, management of replicated data. Prerequisite: grade of C- or higher in 22C:162 or 22C:168 or equivalent.

22C:168 Computer Communications 3 s.h.
Networks, ISO model, network topology, data link control; error control; point-to-point networks, local area networks; transport services; wireless networking, internetworking; user services. Prerequisites: senior or graduate standing in computer science or electrical and computer engineering; 22C:120, and familiarity with C and Unix; or consent of instructor. Same as 055:134.

22C:169 Computer Security 3 s.h.
Mechanisms versus policy; authentication, access control, security domains; perimeter security, defense in depth, cryptographic protocols; key management and distribution; security assessment. Prerequisite: grade of C- or higher in 22C:031 or equivalent.

22C:170 Numerical Analysis: Nonlinear Equations and Approximation Theory 3 s.h.
Root finding for nonlinear equations; polynomial interpolation; polynomial approximation of functions; numerical integration. Prerequisites: computer programming knowledge, 22M:027 and 22M:028, or 22M:037 and 22M:040, or 22M:056; or consent of instructor. Same as 22M:170.

22C:171 Numerical Analysis: Differential Equations and Linear Algebra 3 s.h.
Numerical methods for initial value problems for ordinary differential equations; direct and iterative methods for linear systems of equations; eigenvalue problems for matrices. Prerequisites: computer programming knowledge, 22M:027 and 22M:028, or 22M:037 and 22M:040, or 22M:056; and 22M:041 or 22M:100, or consent of instructor. Same as 22M:171.

22C:174 Optimization Techniques 3 s.h.
Basic theory of optimization, use of numerical algorithms in solution of optimization problems; linear and nonlinear programming, sensitivity analysis, convexity, optimal control theory, dynamic programming, calculus of variations. Prerequisites: 22M:100 or equivalent. Same as 22M:174.

22C:177 Parallel and High Performance Algorithms in Scientific Computing 3 s.h.
Design and implementation of computational linear algebra algorithms for high-performance computers; parallel algorithms for dense and sparse linear systems of equations; parallel direct and iterative methods, Krylov Subspace methods, and preconditioners; implementation issues on shared memory and distributed memory architectures. Prerequisites: knowledge of a computer language and basic linear algebra, a linear algebra course, and a numerical analysis course. Same as 22M:178.

22C:180 Fundamentals of Software Engineering 3 s.h.
Problem analysis, requirements definition, specification, design, implementation, testing/maintenance, integration, project management; human factors; management, technical communication, design methodologies, software validation, verification, group project experience. Prerequisite: senior or graduate standing in computer science or electrical and computer engineering. Same as 055:180.

22C:181 Formal Methods in Software Engineering 3 s.h.
Prerequisites: grades of C- or higher in 22C:180 or experience with C++ and consent of instructor. Same as 055:182.

22C:183 Software Engineering Project Management 1-3 s.h.
Resource requirements estimation, planning, management; risk analysis; scheduling, tracking, control; personnel supervision, training, evaluation; process improvement and management, including change control, configuration management, technical project leadership, assessment; participation in management of projects and teams in 22C:183. Prerequisites: grades of C- or higher in 22C:182 and 22C:183, and consent of instructor.

22C:189 Software Engineering Project Management 3 s.h.
Topics not covered in other courses. Prerequisite: consent of instructor.

22C:198 Individual Programming Projects 3 s.h.
Prerequisite: consent of instructor.

For Graduate Students

22C:231 Design and Analysis of Algorithms 3 s.h.
Review of design and analysis techniques; advanced data structures (heaps and Fibonacci heaps, disjoint sets, graph algorithms (network flows, matching, min-cut); NP-completeness, randomization and approximation algorithms; special topics (string matching, computational geometry, number theoretic algorithms). Prerequisite: 22C:031 or 22C:131 or equivalent.

22C:244 Database System Implementation 3 s.h.
Advanced database topics including life organizations, storage management, architecture, database management, recovery, and concurrency control. Optional topics include distributed databases and integration. Prerequisite: 22C:144 or equivalent.

22C:245 Advanced Artificial Intelligence 3 s.h.
For Advanced Undergraduate and Graduate Students
Adjunct associate professor: David Schoonover
Assistant professors: Lori Branch, Matthew Brown (English/Center for the Book), Loren Glass, Priya Kumar, Kathryn Lavezzo, Mark Levine, Douglas Trevor, Lara Trubowitz
Assistant professor emeritus: John B. Harper
Lecturers: Jeff Porter, Mary Ann Rasmussen

Undergraduate degree: B.A. in English
Undergraduate nondegree program: minor in English
Graduate degrees: M.A., M.F.A., Ph.D. in English
Web site: http://www.uiowa.edu/~english/

The Department of English offers courses in literature, cultural studies, language, and writing. In these courses, students read poetry, fiction, essays, criticism, and theory to acquire methods for understanding literature and culture. In addition to providing these essential elements of a liberal education, department courses can augment students’ specialized interests in other fields. The department also participates in the interdisciplinary departments and programs in American Studies; American Indian and Native Studies; African American World Studies; the Center for the Book, Cinema and Comparative Literature; Literature, Science, and the Arts; and Women’s Studies.

The department has a strong, long-standing commitment to teaching creative and nonfiction writing. Although most students in the Ph.D. program are preparing for careers as teachers and scholars, and most in the M.F.A. program are preparing for lives as poets, storytellers, and essayists, the B.A. and M.A. programs provide valuable training for careers in many other fields. Students who have received English degrees from The University of Iowa write for advertising firms, newspapers, and book publishers; teach in primary and secondary schools; practice law and medicine; work in business and industry; and participate in state or federal government. As far as possible, a student’s course of study is arranged to meet his or her individual needs and objectives.

Undergraduate Program

The English department offers courses in literature, film, critical theory, cultural studies, language, and writing. In these courses, students study poetry, fiction, essays, criticism, film, and theory to acquire methods for understanding the history and significance of texts in the cultures from which they emerge. The program also challenges students to strive for excellence as writers.

Bachelor of Arts

Requirements for the major in English have changed. Students who entered the College in summer 2004 or later, or who declared the major on or after the first day of fall semester 2004, must complete the program described below. Students who declared the major before the first day of fall semester 2004 may choose to complete the old requirements, but they must complete all requirements and graduate by August 2008.

The major in English requires a minimum of 33 s.h. of course work (11 courses). Course work is divided into six areas and three historical periods. The area and historical period that each regularly offered course fulfills is identified in the course description on the University’s ISIS web site. Information and course lists are also available on the department’s web site and from advisers.

At least one course (3 or 4 s.h.) from each of the following six areas is required.

1. Literary theory and interdisciplinary studies

2. Medieval and early modern literature and culture

3. Modern British literature and culture

4. Transnational literature and postcolonial studies

5. Nonfiction and creative writing

Each student chooses one of the six areas as a concentration area and takes an additional two courses in that area, for a total of three courses (9 or more s.h.) in one area, and eight area courses in all.

Students also must take at least two courses from each of the following three historical periods.

1. Early literatures through the 17th century

2. Eighteenth- and/or 19th-century literature

3. Twentieth- and/or 21st-century literature

Since most courses satisfy both an area and a historical period, most students complete the historical period requirements as they complete the area requirements, and are able to choose additional elective course work to complete the major.

Of the 33 s.h. required for the major, 15 s.h. may be transferred from another institution. At least 18 s.h. in the major must be taken in residence at The University of Iowa.

Students who plan to apply to the College of Education for a degree in secondary education (English) should consult with an adviser in that program as early as possible. The education degree demands that students choose particular courses within each of the English major’s required categories in order for them to meet state requirements. See “English and Education” in this section of the Catalog.

Students interested in an English major should consult the director of undergraduate studies in the English department office. The English department’s web site also offers detailed information about the program, faculty, courses, and upcoming events.

Courses Approved for General Education

English majors should not use 08G courses to complete the College of Liberal Arts and Sciences General Education Program. Although 08G:001 The Interpretation of Literature is a part of the General Education Program, English majors should substitute a course approved for General Education in the humanities area for 08G:001.

No 08G course can be counted toward the 33 s.h. required for the English major. Creative Writing Studio Workshop (08C:001) cannot be counted toward the English major.
Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s Four-Year Graduation Plan.

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

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

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

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

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

Honors

The English major with honors gives talented students the opportunity to enhance their course of study through special courses and independent study. Each year the department offers five honors proseminars covering a wide range of historical areas and topics.

Students usually complete a four-semester sequence to graduate with honors in English. They must complete two honors proseminars (008:098), preferably during the junior year, and a senior thesis. Students who wish to count other coursework, including study abroad, toward the proseminar requirement must have the honors director’s permission. The honors proseminar requirement must be completed the semester before graduation.

To graduate with honors in English, students must maintain a cumulative University of Iowa g.p.a. of at least 3.33 and an English g.p.a. of at least 3.50.

Ideally, the honors student’s senior year is devoted to the thesis project, written under the supervision of a faculty member. Students may earn up to 6 s.h. of credit for work they carry out for the honors thesis, through a combination of semester hours earned in 008:120 Honors Thesis Workshop and/or 008:198 Undergraduate Honors Project Independent Study. Thesis projects may cover the range of fields offered by the Department of English: literary, theoretical, and cultural studies; nonfiction writing; and creative writing (poetry and fiction).

Students who wish to submit a nonfiction thesis must work under the supervision of a regular faculty member in the Nonfiction Writing Program and must have completed at least one nonfiction writing course above the 100 level. Students who wish to submit a creative thesis in poetry or fiction must work under the supervision of a permanent member of the Writers’ Workshop.

Students interested in more information should contact the director of the English honors program or director of undergraduate studies.

A handout, Guidelines and Deadlines, which details requirements for the final project and specifies deadlines for turning in the prospectus and the final honors project, is available in the English office and the Honors Lounge.

Contact the University Honors Program for more information about honors study at Iowa.

Writing Programs

For the past 50 years, The University of Iowa has been a national leader in virtually all areas of the teaching of writing.

Founded in 1936, the Writers’ Workshop was a pioneer in the field of creative writing. It numbers scores of distinguished poets and novelists among its alumni. The workshop provides opportunities for students at all levels to work with outstanding teachers. It also brings many prominent authors to campus each year for readings and informal discussions.

Although the Writers’ Workshop is essentially a graduate program, many undergraduates come to The University of Iowa because of the Workshop’s prominence. With the consent of his or her adviser, any student may select the undergraduate courses taught by the Workshop. These are 08C:023 Creative Writing, 08C:097 Fiction Writing, 08C:098 Poetry Writing, and 08C:001, the General Education humanities Creative Writing Studio Workshop. 08C:001 does not, however, count toward the major in English.

Admission to the undergraduate workshops in fiction and poetry (08C:163 Undergraduate Writers’ Workshop: Fiction and 08C:166 Undergraduate Writers’ Workshop: Poetry) requires the consent of the instructor. Students who wish to participate in these workshops must submit samples of their poetry or fiction to the Writers’ Workshop office no earlier than a week before registration and no later than the last day of registration.

Nonfiction writing is also a major area of interest for faculty and students in the department of English. Students may enroll for courses which stress practice in various forms of nonfiction writing and for courses which focus on nonfiction literature. Students wishing to participate in the Undergraduate Essay Workshop (08N:150) and other courses with special permission requirements should check with the instructor of the course before registering.

Undergraduate majors who wish to concentrate in nonfiction and creative writing may do so with any combination of 08N or 08C courses.

English and Education

Students planning to teach English in secondary schools must complete the requirements for the major in English and gain admission to the Teacher Education Program. Application forms for admission are available from the Office of Teacher Education and Student Services at the College of Education.

COURSE REQUIREMENTS

By the end of the program, students must have taken the following courses.

English (Part of the Undergraduate Major)

One Shakespeare course
Three courses on American literature, one with a focus on cultural studies
Two courses on literature written before 1800
One course on 19th- or 20th-century British literature
08N:141/07S:155 Approaches to Teaching Writing 3 s.h.
08P:182/07S:182 Language and Learning 2-3 s.h.
08P:198/07S:193 Reading and Teaching Adolescent Literature 3 s.h.
One course in writing [in addition to 08N:141]

**Graduate Programs**

**Master of Arts in Literary Studies**
The M.A. in Literary Studies is one of several M.A. programs offered by the English department at The University of Iowa. The M.F.A. and the M.F.A. in Nonfiction Writing offer advanced courses in writing poetry, fiction, and essays; the M.A. in Literary Studies introduces students to the professional study of literature.

Although direct application to the Ph.D. program is generally encouraged, some students consider the M.A. an appropriate step in their professional training. These students may have had an undergraduate major in a different field or may want more preparation for other reasons. Some may be intending to complete their studies elsewhere. Students interested in careers in any area of book studies (professional writing, editing, web design, or publishing) may wish to pursue the M.A. as a terminal degree, as may teachers seeking to enhance their credentials or students pursuing intellectual growth unrelated to a specific career.

M.A. and Ph.D. students mix freely in graduate courses, share the same access to faculty, and meet the same standards of quality in their work.

**Degree Requirements**
The degree requires a minimum of 30 s.h., including 24 s.h. earned in residence at The University of Iowa with a g.p.a. of at least 3.25. Students who wish to transfer to the Ph.D. program at Iowa must complete two semesters or 15 s.h. of course work in literature (whichever comes first) before applying for admission to the doctoral program.

**Course Work**
Each student must take the following courses at the 200 level or above. Applicable transfer courses must be approved by a faculty adviser.

**One course in criticism and theory**

Four courses from the following five areas:
British or American literature and culture before 1500
British or American literature and culture 1500-1660
British or American literature and culture 1660-1800
British or American literature and culture 1800-1900
British or American literature and culture of the 20th Century

Elective courses constitute half of the total credit for the degree and may be chosen from graduate courses both in and outside the English department. Students may wish to explore opportunities for interdisciplinary study, language study, experience in theory and practice of writing, or specialization in a field of literary scholarship.

Completion of the M.A. degree requires either a thesis or a portfolio. Students submit a written description of their choice to the director of the program before the semester in which they plan to graduate.

**M.A. Thesis**
Students who choose to write an M.A. thesis must submit a brief prospectus approved by a thesis director before registering for thesis credit and at least one semester before they submit the thesis. The thesis committee consists of the thesis director, the director of the M.A. program, and one other faculty member. At a final oral examination, the thesis is evaluated by the committee as either satisfactory or unsatisfactory.

A copy of the thesis must be presented to the Graduate College for approval no later than four weeks before the date on which the degree is to be conferred. The final copy of the thesis must be deposited with the college no later than 10 days before graduation. For additional information on Graduate College rules, consult the Manual of Rules and Regulations of the Graduate College.

**The Portfolio**
Students working toward the M.A. degree in literary studies submit, near the end of their course work, a portfolio of work to the M.A. examination committee, which consists of the director of the M.A. program and two other members. All three read the full portfolio. To pass, the candidate must win a majority vote of the committee members.

The first step in preparing to submit a portfolio is a meeting between the candidate and the director of the M.A. program to discuss the portfolio and scheduling. Soon after this meeting, and no less than three weeks before the exam date, the student presents to the director a draft of the portfolio’s introductory statement. The director may suggest that changes be made either before or after approval of the statement is granted. Once the director approves the statement, the student must provide the director with three copies of the full portfolio at least two weeks before the date of the examination.

The work in the portfolio should demonstrate the candidate’s knowledge of literature as a broad historical and theoretical inquiry. Students submit approximately 50 pages, or 12,500 words, of their best work, along with an introductory statement of five to seven pages. The body of the portfolio should contain revised versions of papers originally produced for classes. The introductory statement should explain the contents of the portfolio, contextualize each paper, and give a brief overview of the writing submitted. Candidates are expected to describe the research methods used in assembling their portfolios and the critical practices that ground their work.

**M.A.T. Candidates**
The English component of the exam for the M.A.T. program is administered in coordination with the College of Education. M.A.T. candidates
Master of Fine Arts (Creative Writing)

The purpose of the M.F.A. program in creative writing is to provide professional guidance and a stimulating environment for students with previous achievement or notable promise in writing poetry or fiction. The flexible requirements include 48 s.h. of graduate credit, earned chiefly in the Writers’ Workshop; a collection of poems or short stories, or a novel; and satisfactory performance on an examination covering modern poetry or fiction.

Doctor of Philosophy

The Ph.D. program is designed as preparation for the teaching, publishing, and administrative service required of college and university faculty members. The doctorate requires 72 s.h. of graduate credit, including at least 30 s.h. earned in residence at The University of Iowa with a g.p.a. of at least 3.50 and standing as a full-time student.

Concentrations are offered in areas such as literary history, literary theory, and cultural studies.

Ph.D. requirements include the following.

- Formal admission to candidacy by a vote of the Graduate Steering Committee, usually during the third semester of doctoral study
- Course work in any four of the following historical periods:
  - British or American literature and culture before 1500
  - British or American literature and culture 1500-1660
  - British or American literature and culture 1660-1800
  - British or American literature and culture 1800-1900
- A comprehensive examination that consists of the following: a portfolio of five scholarly questions based on a period of British and/or American literary history; a review essay and annotated bibliography in a special area of interest; two course syllabi; an article to be submitted for publication; and an introduction to the portfolio that synthesizes its parts in preparation for a two-hour exam
- A dissertation
- A final examination in defense of the dissertation

All doctoral candidates are encouraged to gain teaching experience, preferably in the College of Liberal Arts and Sciences programs in rhetoric and in the literature courses of the General Education Program.

Application forms and a complete description of the program are available from the department’s graduate secretary.

Admission

Admission requirements are stated on the department’s web site. Applications for admission are due January 15.

Financial Support

Support is available to graduate students in the form of scholarships, fellowships, and teaching and research assistantships. It is awarded on a competitive basis. The department strives to support all doctoral students who are in good standing, which requires a University of Iowa g.p.a. of at least 3.50 and standing as a full-time student.

Financial aid applications are considered only from students who have applied or been admitted to a degree program in the Graduate College. Applications and all necessary supporting material must be submitted by the end of January for the following academic year. Forms are available from the English department and the University’s Office of Admissions.

Writing Programs

For the past 68 years, The University of Iowa has been a national leader in virtually all areas of the teaching of writing.

Founded in 1936, the Writers’ Workshop was a pioneer in the field of creative writing. It counts scores of distinguished poets and novelists among its alumni. The workshop provides opportunities for students at all levels to work with outstanding teacher-authors. It also brings numerous prominent authors to campus each year for lectures and readings.

The University of Iowa also is a leader in the area of nonfiction writing. It is one of the few academic institutions in the nation that offers a full range of graduate course work in this area.

Facilities

The University’s library collection is strong in all areas of English and American literature. Partly because of the influence of the Writers’ Workshop, the library has particular strengths in 20th-century fiction and poetry, including manuscript collections of 20th-century authors. Several periodicals are published under the department’s aegis. The Iowa Review, The Walt Whitman Quarterly Review, and Philological Quarterly offer opportunities for especially qualified graduate students to work as research assistants or editorial associates. The Iowa Journal of Cultural Studies, edited by English department graduate students, features creative and scholarly work by students in English and related areas.

The Windhover Press, which publishes fine editions of works by contemporary authors, offers qualified students the opportunity to learn the art of fine printing.

The Department of English and the Writers’ Workshop sponsor a rich and extensive series of readings and lectures by poets, fiction writers, and scholars, all open to students in the department.

The Association of Graduate Students in English sponsors social and intellectual events during the year and provides a forum for student opinion. All graduate students in the department are members.

Courses

Individual descriptions for most English courses are not included because content and emphasis may vary considerably from one semester to the next. Detailed course descriptions for each semester’s courses are available on the University’s ISIS web site.

Courses for Non-English Majors

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>08A:015</td>
<td>Writing for Practical Purposes for Non-English Majors</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>08A:072</td>
<td>Shakespeare for Non-English Majors</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>08A:080</td>
<td>Nonfiction Writing for Non-English Majors</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>08A:102</td>
<td>Personal Writing for Non-English Majors</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>08A:106</td>
<td>Literature and Culture of 20th-Century America for Non-English Majors</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>08A:113</td>
<td>Writing for Business and Industry for Non-English Majors</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>08A:133</td>
<td>British Novel: Scott to Butler for Non-English Majors</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>08A:135</td>
<td>Forms of the Essay for Non-English Majors</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>08A:142</td>
<td>Popular Literature for Non-English Majors</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>08A:182</td>
<td>Science Fiction for Non-English Majors</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>
Literature—Primarily for Undergraduates

English department courses are open to all undergraduates who have satisfied the rhetoric requirement. Undergraduates should complete one or more departmental courses below the 100 level before attempting 100-level courses.

008:001 Modern Fiction 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st century literature.

008:002 Postmodern Fiction 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st century literature.

008:008 Classical and Biblical Literature 3 s.h.

008:011 Films and Screenplays 3 s.h.

008:033 Introduction to Criticism and Theory 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st century literature.

008:034 Introduction to the Novel 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st century literature.

008:035 Introduction to Poetry 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st century literature.

008:036 Introduction to the Short Story 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st century literature.

008:058 American Novel II 3 s.h.
Area: American literature and culture. Period: 20th- and/or 21st century literature.

008:059 American Short Story 3 s.h.
Area: American literature and culture. Period: 18th- and/or 19th-century literature, and/or 20th- and/or 21st-century literature.

008:060 Selected Works of the Middle Ages 3 s.h.

008:061 Selected Works of the 16th and 17th Centuries 3 s.h.

008:062 Eighteenth-Century British Literature 3 s.h.
Area: modern British literature and culture. Period: 18th- and/or 19th-century literature.

008:063 British Romanticism 3 s.h.
Area: modern British literature and culture. Period: 18th- and/or 19th-century literature.

008:064 Victorian Literature 3 s.h.

008:065 Twentieth-Century British Literature 3 s.h.
Area: modern British literature and culture. Period: 20th- and/or 21st-century literature.

008:066 Twenty-first-Century British Literature 3 s.h.
Area: modern British literature and culture. Period: 20th- and/or 21st-century literature.

008:074 Selected American Authors 3 s.h.
Area: American literature and culture. Period: 18th- and/or 19th-century literature, and/or 20th- and/or 21st-century literature.

008:075 Selected Transnational Authors 3 s.h.
Area: Transnational literature and postcolonial studies. Period: 20th- and/or 21st-century literature.

008:076 Selected Early Authors 3 s.h.

008:077 Selected British Authors 3 s.h.
Area: modern British literature and culture. Period: 18th- and/or 19th-century literature, and/or 20th- and/or 21st-century literature.

008:081 Film and Literature 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st-century literature. Same as 048:081.

008:082 Latina/o Studies 3 s.h.
Area: American literature and culture. Period: 20th- and/or 21st-century literature.

008:083 Topics in African American Literature 3 s.h.
Area: American literature and culture. Period: 20th- and/or 21st-century literature.

008:084 Topics in Culture and Identity 3 s.h.
Area: transactional literature and postcolonial studies. Period: 20th- and/or 21st-century literature.

008:086 Topics in Asian American Literature 3 s.h.
Area: transnational literature and postcolonial studies. Period: 20th- and/or 21st-century literature.

008:095 Seminar in Interdisciplinary Studies 3 s.h.

008:100 Literature and Culture of Seventeenth-Century England 3 s.h.

008:101 Literature and Culture of the Middle Ages 3 s.h.

008:102 Literature and the Culture of the Renaissance 3 s.h.

008:103 Literature and the Culture of Eighteenth-Century Britain 3 s.h.
Area: modern British literature and culture. Period: 18th- and/or 19th-century literature.

008:104 Literature and the Culture of Nineteenth-Century Britain 3 s.h.
Area: modern British literature and culture. Period: 18th- and/or 19th-century literature.

008:105 Literature and Culture of Nineteenth-Century America 3 s.h.
Area: American literature and culture. Period: 18th- and/or 19th-century literature.
008:106 Literature and the Culture of Twentieth-Century America 3 s.h.
Area: American literature and culture. Period: 20th- and/or 21st-century literature.

008:107 Literature and Culture of Nineteenth-Century Scotland 3 s.h.
Area: modern British literature and culture. Period: 19th- and/or 19th-century literature.

008:108 Literature and Culture of America Before 1800 3 s.h.
Area: American literature and culture. Period: 18th- and/or 19th-century literature.

008:109 Literature and Culture of the Twentieth Century 3 s.h.
Area: transnational literature and postcolonial studies. Period: 20th- and/or 21st-century literature.

008:110 Literature and Culture of 20th- and 21st-Century Britain 3 s.h.
Area: modern British literature and culture. Period: 20th- and/or 21st-century literature.

008:111 Literature and Culture of the Restoration 3 s.h.
Area: modern British literature and culture. Period: 18th- and/or 19th-century literature.

008:112 Literature and Culture of the Romantic Period 3 s.h.
Area: modern British literature and culture. Period: 18th- and/or 19th-century literature.

008:130 Literature and the Book 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st-century literature.

008:131 European Literature of the Nineteenth Century 3 s.h.
Area: modern British literature and culture. Period: 18th- and/or 19th-century literature.

008:132 Literature of the Indian Subcontinent 3 s.h.
Area: transnational literature and postcolonial studies. Period: 19th- and/or 21st-century literature.

008:133 Inter-American Studies 3 s.h.
Area: transnational literature and postcolonial studies. Period: 20th- and/or 21st-century literature.

008:134 Introduction to Book Studies 3 s.h.

008:135 Topics in American Literature 3 s.h.

008:136 Topics in Popular Culture 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st-century literature.

008:137 African American Autobiography 3 s.h.

008:138 Topics in Postcolonial Studies 3 s.h.
Area: transnational literature and postcolonial studies. Period: 20th- and/or 21st-century literature.

008:139 African American Poetry 3 s.h.
Area: American literature and culture. Period: 20th- and/or 21st-century literature. Same as 120:139.

008:140 Elementary Old English 4 s.h.

008:141 Old English Beowulf 3 s.h.

008:142 Medieval Celtic Literature 3 s.h.

008:143 Medieval Norse Literature 3 s.h.

008:144 Medieval Drama 3 s.h.

008:145 English Renaissance Drama 3 s.h.

008:146 Chaucer 3 s.h.

008:147 Shakespeare 3 s.h.

008:148 Milton 3 s.h.

008:149 Spenser 3 s.h.

008:150 Topics in Medieval and Renaissance Literature 3 s.h.

008:151 Literature and Anthropology 3 s.h.

008:152 Introduction to Chicano Literature and Culture 3 s.h.

008:153 Native American Literature 3 s.h.
Area: American literature and culture. Period: 20th- and/or 21st-century literature.

008:154 American Regional Literatures 3 s.h.
Area: American literature and culture. Period: 20th- and/or 21st-century literature.

008:157 Topics in African Cinema 3 s.h.

008:158 Storytelling and Urban Engagement 3 s.h.

008:159 African Literature Today 3 s.h.

008:161 Transnational and Postcolonial Writing by Women 3 s.h.

008:163 Identity and Social Issues 3 s.h.
Area: transnational literature and postcolonial studies. Period: 20th- and/or 21st-century literature.

008:164 Topics in Transnational Literature 3 s.h.
Area: transnational literature and postcolonial studies. Period: 20th- and/or 21st-century literature.

008:165 Diaspora and Transnational Migrations 3 s.h.
Area: transnational literature and postcolonial studies. Period: 20th- and/or 21st-century literature.

008:167 Studies in Drama 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st-century literature.

008:168 Topics in Poetry and Poetics 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st-century literature.

008:169 Changing Concepts of Women in Literature 3 s.h.

008:170 Literary Genres and Modes 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st-century literature.

008:171 Topics in Film and Popular Culture 3 s.h.

008:172 Narrative and the Cinema 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st-century literature.

008:173 Topics in Digital Media 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st-century literature.

008:175 Topics in Film and Literature 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st-century literature.

008:176 Literature and Philosophic Thought 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st-century literature.

008:177 Literature and Art 3 s.h.

008:179 Literature and Society 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st-century literature.

008:181 Issues in Rhetoric and Culture 3 s.h.

008:182 Science Fiction 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st-century literature.

008:184 Contemporary Theatre and Drama 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st-century literature. GE: fine arts or humanities. Same as 109:114.

008:185 Native American Autobiography 3 s.h.

008:187 Handprinted Book: Design and Production 3 s.h.

008:188 Prose by Women Writers 3 s.h.
Area: literary theory and interdisciplinary studies. Period: 20th- and/or 21st-century literature. Same as 131:188.
Nonfiction and Creative Writing

The following courses may be repeated:

08N:080, 08N:119, 08N:130, 08N:135, 08N:150, and 08N:155. Others may be repeated with consent of both the instructor and the director of undergraduate studies.

08C:023 Creative Writing 3 s.h.
Guidance in the process of writing fiction and poetry; writing, exploration; development of students’ critical skills as readers; application of new knowledge and skills to students’ own writing. Period: 20th- and/or 21st-century literature.

08C:097 Fiction Writing 3 s.h.
Analysis of works of accomplished fiction writers; critique of class members’ short stories, in writing and in class; discussion of how class members use language, characterization, point of view, other elements of fiction in their work. Period: 20th- and/or 21st-century literature.

08C:098 Poetry Writing 3 s.h.
Careful writing of poems, reading of poetry by class members as well as established poets; supportive workshop context. Performance, readings, visits to research facilities. Prerequisite: consent of instructor.

08C:163 Undergraduate Writers’ Workshop: Fiction 3 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisites: first- or second-semester standing.

08C:165 Undergraduate Writers’ Workshop: Poetry 3 s.h.
Analysis of works of accomplished poetry writers; critique of class members’ short stories, in writing and in class; discussion of how class members use language, characterization, point of view, other elements of poetry in their work. Period: 20th- and/or 21st-century literature.

08N:050 Word Power: Building English Vocabulary 3 s.h.
Period: 20th- and/or 21st-century literature. Same as 20E:050.

08N:080 Nonfiction Writing 3 s.h.
Period: 20th- and/or 21st-century literature.

08N:094 Nature Writing for Interdisciplinary Audiences 3 s.h.
Period: 20th- and/or 21st-century literature. Same as 012:094.

08N:102 Prose Style 3 s.h.
Period: 20th- and/or 21st-century literature.

08N:104 Personal Writing 3 s.h.
Period: 20th- and/or 21st-century literature.

08N:113 Writing for Business and Industry 3 s.h.
Period: 20th- and/or 21st-century literature.

08N:119 Writing for Interdisciplinary Audiences 3 s.h.

08N:120 Advanced Nonfiction Writing 3 s.h.
Period: 20th- and/or 21st-century literature.

08N:125 Freelance Reporting and Writing 4 s.h.
Period: 20th- and/or 21st-century literature. Same as 019:125.

08N:130 Forms of Nonfiction 3 s.h.
Period: 20th- and/or 21st-century literature.

08N:133 Advanced Writing for Business 3 s.h.
Period: 20th- and/or 21st-century literature.

08N:135 Forms of the Essay 3 s.h.
Period: 20th- and/or 21st-century literature.

08N:141 Approaches to Teaching Writing 3 s.h.
Period: 20th- and/or 21st-century literature. Same as 07S:155.

08N:145 Multimedia Writing 3 s.h.
Period: 20th- and/or 21st-century literature.

08N:150 Undergraduate Essay Workshop arr.
Period: 20th- and/or 21st-century literature.

08N:155 Undergraduate Nonfiction Workshop 3 s.h.
Period: 20th- and/or 21st-century literature. Prerequisite: consent of instructor.

08N:183 Invention 3-4 s.h.
Period: 20th- and/or 21st-century literature. Same as 160:183.

08N:192 Dublin Writing Workshop 3 s.h.
Period: 20th- and/or 21st-century literature.

08N:196 Nonfiction Writing Internship 3 s.h.
Period: 20th- and/or 21st-century literature.

08N:199 Undergraduate Project in Nonfiction Writing 3 s.h.
Period: 20th- and/or 21st-century literature.

Special Topics

These courses do not fulfill area or period requirements for the English major. They may be used to earn elective credit in the major.

008:013 The Classical Views 3 s.h.
GE: foreign civilization and culture or humanities. Same as 20E:013.

008:029 First-Year Seminar 1-2 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisites: first- or second-semester standing.

008:040 Major Texts in World Literature I 3 s.h.
GE: humanities. Same as 048:040.

008:041 Major Texts of World Literature II 3 s.h.
GE: humanities. Same as 048:041.

008:125 Classical Mythology 3 s.h.
GE: humanities. Same as 20E:112.

008:126 Literary Genres in European Literature II 3 s.h.
Same as 041:115, 048:115.

008:155 Tolstoy and Dostoevsky 3-4 s.h.
Same as 041:155.

008:156 Invitation to Nabokov 3 s.h.
Same as 041:156, 048:156.

008:199 Special Project for Undergraduates arr.

Honors

008:098 Honors Proseminar 4 s.h.
Period: early literatures through 17th century, or 18th- and/or 19th-century literature, or 20th- and/or 21st-century literature. Prerequisites: 3.20 cumulative g.p.a. and consent of English department honors director.

008:120 Honors Thesis Workshop 3 s.h.
Prerequisites: admission to English department honors program, 008:098, and consent of English department honors director.

008:198 Undergraduate Honors Project 1-4 s.h.
Prerequisites: admission to English department honors program and consent of instructor.

Literature—for Graduate Students

Introductory Course

008:201 Introduction to Graduate Study 1 s.h.

Graduate Reading Courses

008:215 Middle English Language and Literature 4 s.h.

008:216 Medieval Authors 3 s.h.
Repeatable.

008:218 Readings in Medieval Literature and Culture 3 s.h.
Repeatable.

008:219 Sixteenth- and Seventeenth-Century Authors 3 s.h.
Repeatable.

008:220 Readings in Sixteenth- and Seventeenth-Century Genres 3 s.h.
Repeatable.

008:222 Restoration and Eighteenth-Century Literature 3 s.h.
Same as 010:222.

008:223 Romantic Literature 3 s.h.
Same as 048:223.

008:224 Victorian Literature 3 s.h.

008:225 Late Victorian and Edwardian Literature 3 s.h.

008:227 Three African Writers 3 s.h.
Same as 129:227.

008:228 Studies in African American Literature 3 s.h.

008:229 Introduction to Contemporary Theory 3 s.h.
Repeatable.

008:235 Readings in Twentieth-Century Literatures I 3 s.h.
Repeatable.

008:236 Readings in Twentieth-Century Literatures II 3 s.h.
Repeatable.

008:238 Readings in American Indian Literature 3 s.h.

008:239 Queer Theory 3 s.h.
Same as 035:239, 048:239.

008:243 Feminist Cultural Studies 3 s.h.

008:247 American Literary Magazines 1 s.h.

008:249 Modernist Studies 3 s.h.

008:250 Readings in American Literature 3 s.h.

008:253 Shakespeare 3 s.h.
Same as 049:213.

008:262 History of Criticism: 1700 to Present 3 s.h.
Same as 048:262, 049:262.

008:263 Issues in Rhetoric and Culture 3 s.h.
Repeatable. Same as 010:360.

008:266 Rhetorics of Ethnographies 3 s.h.
Same as 010:361, 113:261.

008:267 Classical Rhetoric 3 s.h.
Same as 010:301, 20E:230, 036:310.

008:268 Modern Rhetoric 3 s.h.
Same as 036:311.

008:270 Introduction to Cultural Studies 3 s.h.

008:275 Literature as Letters 3 s.h.

008:284 Types of Modern Criticism 3 s.h.

Graduate Special Topics

008:306 Studies in Language Theory 3 s.h.
Same as 036:331.

008:313 Digital Rhetorics 3 s.h.
Same as 160:313, 650:313.

008:315 Current Issues in Rhetoric 3 s.h.

008:323 Topics in Nineteenth-Century Literature 3 s.h.

008:324 Topics in Twentieth-Century Literature 3 s.h.

008:330 Modes of Critical Analysis 3 s.h.

008:332 Selected Twentieth-Century Genres 3 s.h.
008:333 Studies in Modernism and Postmodernism 3 s.h.
008:338 Topics in Contemporary Literature and Culture 3 s.h.
008:340 Topics in American Literature and Culture 3 s.h.

Advanced work in literary history, criticism, and theory; concentration varies from semester to semester.

008:230 Crossing Borders Seminar: Introductory 3-4 s.h.
008:231 Crossing Borders Seminar 3-4 s.h.
008:402 Seminar: Medieval Literature and Culture arr.
008:431 Seminar: Romantic Literatures arr.
008:432 Seminar: Victorian Literature arr.
008:455 Seminar: Post-Colonial Studies Same as 048:453.
008:458 Seminar: American Literature and Culture arr.
008:460 Seminar: Problems in Aesthetics and Literary Theory Same as 048:460.
008:462 Seminar: Cultural Studies arr.
008:466 Seminar: History, Literature, and American Culture Same as 045:260.

Independent Study
008:500 Advanced Studies in an Author arr.
008:505 Advanced Studies in a Literary Period arr.
008:510 Advanced Studies in a Literary Form arr.
008:515 Advanced Studies in a Literary Genre arr.
008:520 Advanced Studies in a Literary Mode arr.
008:525 Advanced Studies in a Literary Movement arr.
008:530 Advanced Studies in a Literary Theme arr.
008:550 Advanced Studies in an Interdisciplinary Subject arr.
008:585 M.A. Thesis in Literary Studies arr.
008:590 Special Project for Graduate Students arr.

Linguistics and Language
08L:100 Introduction to Linguistics 3 s.h.
08L:111 History of the English Language 3 s.h.
08L:215 Historical and Comparative Linguistics 3 s.h.
08L:375 Teaching in a Writing Center 3 s.h.

Professional Training
Only undergraduates with special permission may take 08P:020 and 08P:021. Neither course counts for credit toward an English major or minor.

08P:020 Academic Seminar I 3 s.h.
08P:021 Academic Seminar II Same as 08P:020.

The following courses offer theoretical and practical training for those who plan to teach.

08P:182 Methods in Literary Research 2-3 s.h.
08P:190 Methods English Same as 07S:210.
08P:198 Reading and Teaching Adolescent Literature 3 s.h.
08P:204 Literature for Children II 3 s.h.
08P:300 Methods in Literary Research 3 s.h.
08P:405 M.A. Seminar: English Education Arr.

Nonfiction Writing
The following courses may be repeated: 08N:250, 08N:255, 08N:262, 08N:350, and 08N:355. Others may be repeated with consent of both the instructor and the director of graduate studies.

Practice in Writing
These courses give intensive attention to composition and exposition and to formal and thematic problems, both in the mediative essay and in extended works of nonfiction.

08N:250 Forms of Nonfiction arr.
08N:255 Forms of the Essay arr.
08N:340 Writing for Learned Journals 1-4 s.h.
08N:350 Essay Writing Workshop Arr.
08N:355 Nonfiction Writing Workshop Arr.

Theory and Practice of Writing
These courses combine theory and analysis of nonfiction writing with practical experimentation in writing. They are intended for people who want to practice, criticize, and/or teach nonfiction writing.

08N:237 Style and Voice 3 s.h.
08N:262 Readings in Nonfiction 3 s.h.
08N:375 Teaching in a Writing Center Same as 010:375.

Independent Study
08N:550 Special Project in Nonfiction Writing arr.
08N:580 Thesis in Nonfiction Writing arr.

Creative Writing
All may be repeated except 08C:001.

General Education
08C:001 Creative Writing Studio Workshop 3 s.h.

Workshops and Seminars
Open only to Writers’ Workshop students or to others with consent of instructor.

08C:251 Fiction Workshop arr.
08C:252 Poetry Workshop arr.
08C:270 Form of Fiction 3 s.h.
08C:275 Form of Poetry 3 s.h.
08C:297 Fiction Writing 3 s.h.
08C:490 Seminar: Problems in Modern Fiction arr.
08C:495 Seminar: Problems in Modern Poetry arr.
08C:496 The Poetics of the Book 3 s.h.

Translation Studies
08W:070 Undergraduate Translation Workshop Same as 048:070.
08W:260 Translation Workshop Same as 048:260.

Independent Study
08C:195 Undergraduate Project in Creative Writing arr.
08C:555 Graduate Project in Creative Writing arr.
08C:590 M.F.A. Thesis arr.

Translation Studies
08W:070 Undergraduate Translation Workshop 3 s.h.
08W:260 Translation Workshop 1-3 s.h.

Academic coordinator: Stephen D. Hendrix
Executive committee chair: Ann F. Budd
Undergraduate degree: B.S. in Environmental Sciences
Web site: http://www.uiowa.edu/~envsci

The Environmental Sciences Program provides strong and rigorous interdisciplinary training in the scientific aspects of environmental study,
Because it promotes the understanding of Earth as a complex network of interacting organic and inorganic systems, the environmental sciences major demands that students acquire a solid foundation of knowledge in the sciences. It also requires that they attain a thorough grounding in mathematics so that they will have the basic tools to use scientific data necessary for understanding earth systems.

The major draws on the diversity in the broad field of environmental sciences and the disciplinary strengths of the College of Liberal Arts and Sciences to offer four tracks: geosciences, biosciences, chemical sciences, and hydrosciences. Each track focuses on an aspect of environmental sciences, with the aim of preparing students to tackle problems whose solutions require particular areas of expertise: geosciences track—earth materials and surficial geologic processes; hydrosciences track—hydrogeology and hydrogeologic systems, and water chemistry; chemical sciences track—environmental systems and chemistry; and the biosciences track—biological systems and ecological approaches. Students are assigned an adviser who specializes in their track. The Department of Geoscience is the administrative home for the Environmental Sciences Program.

Bachelor of Science

Students majoring in environmental sciences must complete requirements in three areas: a science and mathematics foundation that provides the basic comprehension students need to complete the rigorous degree requirements; an earth systems foundation that develops students’ comprehensive knowledge of earth surface physical and biotic systems as well as the skills they will need for employment or future graduate study; and one of the four tracks providing a focus in one area of environmental science. Students also must complete the College of Liberal Arts and Sciences General Education Program. Courses required for the major in environmental sciences also can be used to complete the General Education Program.

SCIENCE AND MATHEMATICS FOUNDATION

Students must complete at least 34 s.h. of course work in this area, including the following.

020:010-020:011 Principles of Biology I-II 8 s.h.
040:011-040:012 Principles of Chemistry I-II 8 s.h.
012:005 Introduction to Geology 4 s.h.
One of these sequences:
22M:021-22M:022 Calculus and Modeling I-II 8 s.h.
22M:025-22M:026 Calculus I-II 8 s.h.
One of these:
22S:039 Probability and Statistics for the Engineering and Physical Sciences 3 s.h.
22S:101 Biostatistics 3 s.h.
22S:105 Statistical Methods and Computing 3 s.h.
One of these:
044:019 Contemporary Environmental Issues 3 s.h.
An approved environmental policy or issues course 3 s.h.

EARTH SCIENCES FOUNDATION

All environmental sciences majors must complete the following earth systems courses.

All of these:
159:008 Introduction to Environmental Science 4 s.h.
159:010 Environmental Seminar I 0 s.h.
159:100 Environmental Seminar II 1 s.h.
159:102 Earth Surface Processes 3 s.h.
159:110 Introduction to Applied Remote Sensing 4 s.h.
159:134 Ecology 4 s.h.
One of these:
044:005 Foundations of GIS 3 s.h.
159:153 Geocomputing 3 s.h.

Tracks

All environmental sciences majors must choose one of the four tracks in the major. Each track requires additional general sciences courses, track foundation courses, field courses, and electives.

ENVIRONMENTAL GEOSCIENCES (BROWN) TRACK

The environmental geosciences track provides training for entry-level positions that require a basic understanding of geological principles and a working knowledge of basic geologic concepts applied in the environmental industry. It also lays a strong foundation for graduate study in environmental geology, engineering geology, and natural hazards assessment. The environmental geosciences track requires 34 s.h.

General Science

029:008 Basic Physics 4 s.h.

Students are strongly encouraged to take additional work in physics.

Environmental Geosciences Foundation

012:041 Mineralogy 4 s.h.
012:052 Petrology 4 s.h.
012:092 Structural Geology 4 s.h.
012:136 Soil Genesis and Geomorphology 3 s.h.
012:179 Engineering Geology 3 s.h.

Environmental Geosciences Field Study

012:093 Geologic Field Methods 2 s.h.
012:194 Environmental Field Methods 3 s.h.

Environmental Geosciences Electives

At least 9 s.h. from these:
*06E:133 Environmental and Natural Resource Economics 3 s.h.
012:161 Stratigraphy 3 s.h.
012:178 Applied Geostatistics 3 s.h.
012:179 Engineering Geology 3 s.h.
012:180 Principles of Geophysics 3 s.h.
012:184 Groundwater Modeling 3 s.h.
22M:041 Differential Equations 3 s.h.
044:101 Climatology 3 s.h.
*044:121 Natural Resources Policy 3 s.h.
*044:122 Environmental Conservation in the United States 3 s.h.
*044:125 Environmental Impact Analysis 4 s.h.
044:126 Wetlands: Function, Geography, and Management 3 s.h.
044:129 Water Resources Management 3 s.h.
053:050 Natural Environmental Systems 3 s.h.
053:071 Principles of Hydraulics 3 s.h.
053:152 Environmental Chemistry I 3 s.h.
053:153 Environmental Chemistry Laboratory 3 s.h.
053:154 Environmental Microbiology 3 s.h.
053:179 Hydroclimatology 3 s.h.

*No more than one of these may be included in the 11 s.h.

ENVIRONMENTAL HYDROSCIENCES (BLUE) TRACK

The environmental hydrosciences track provides training for entry-level positions that require a simple understanding of geological principles and a working knowledge of hydrogeology and hydrochemistry. It also prepares students for graduate education in hydrogeology, hydrology, geochemistry, and aqueous chemistry. The environmental hydrosciences track requires 34 s.h.

General Science

029:011-029:012 College Physics 8 s.h.

Environmental Hydrosciences Foundation

All of these:
012:040 Earth Materials and Structure 4 s.h.
012:138 Fluvial Geomorphology 3 s.h.
012:166 Hydrogeology 3 s.h.

One of these:
012:149 Elements of Geochemistry 3 s.h.
053:152 Environmental Chemistry I 3 s.h.

Environmental Hydrosciences Field Study

012:194 Environmental Field Methods 3 s.h.

Environmental Hydrosciences Electives

At least 11 s.h. from these:
*06E:133 Environmental and Natural Resource Economics 3 s.h.
012:161 Stratigraphy 3 s.h.
012:178 Applied Geostatistics 3 s.h.
012:179 Engineering Geology 3 s.h.
012:180 Principles of Geophysics 3 s.h.
012:184 Groundwater Modeling 3 s.h.
22M:041 Differential Equations 3 s.h.
044:101 Climatology 3 s.h.
*044:121 Natural Resources Policy 3 s.h.
*044:122 Environmental Conservation in the United States 3 s.h.
*044:125 Environmental Impact Analysis 4 s.h.
044:126 Wetlands: Function, Geography, and Management 3 s.h.
044:129 Water Resources Management 3 s.h.
053:050 Natural Environmental Systems 3 s.h.
053:071 Principles of Hydraulics 3 s.h.
053:152 Environmental Chemistry I 3 s.h.
053:153 Environmental Chemistry Laboratory 3 s.h.
053:154 Environmental Microbiology 3 s.h.
053:179 Hydroclimatology 3 s.h.

*No more than one of these may be included in the 11 s.h.

ENVIRONMENTAL CHEMICAL SCIENCES (YELLOW) TRACK

The environmental chemical sciences track provides training for entry-level positions that require a basic understanding of chemical principles and a working knowledge of basic chemical concepts as applied in the environment. It also provides a strong foundation for graduate...
or professional training in environmental chemistry. The environmental chemical sciences track requires 37 s.h.

**General Sciences**

One of these sequences:
- 029:011 029:012 College Physics 8 s.h.
- 029:081 029:082 Introductory Physics I-II 8 s.h.

**Environmental Chemical Sciences Foundation**

004:111 004:112 Analytical Chemistry I-II 6 s.h.

One of these sequences:
- 004:121 004:122 Organic Chemistry I-II 6 s.h.
- 004:123 004:124 Organic Chemistry I-II for Majors 6 s.h.

One of these:
- 004:131 Physical Chemistry I 3 s.h.
- 004:132 Physical Chemistry II 3 s.h.

**Field and Laboratory Courses**

004:141 Organic Chemistry Lab 3 s.h.
- 004:143 Analytical Measurements 3 s.h.

**Environmental Chemical Sciences Electives**

At least 8 s.h. from these:
- 004:125 Inorganic Chemistry 2 s.h.
- 004:131 Physical Chemistry I (if not taken as a foundation course) 3 s.h.
- 004:132 Physical Chemistry II (if not taken as a foundation course) 3 s.h.
- 004:162 Undergraduate Research 1-3 s.h.
- 004:173 Atmospheric and Environmental Chemistry 3 s.h.

*06E:133 Environmental and Natural Resources Economics 3 s.h.
- 012:149 Elements of Geology 3 s.h.
- 012:152 Isotope Geochemistry 3 s.h.
- 012:195 Field Methods: Environmental Processes 3 s.h.
- 044:101 Climatology 3 s.h.
- 044:121 Natural Resources Policy 3 s.h.
- 044:122 Environmental Conservation in the United States 3 s.h.
- 044:125 Environmental Impact Analysis 4 s.h.
- 053:152 Environmental Chemistry I 3 s.h.
- 053:153 Environmental Chemistry Lab 3 s.h.
- 053:252 Environmental Chemistry II 3 s.h.
- 099:110 Biochemistry 3 s.h.

*Only one of these policy courses may be counted as part of the 8 s.h. of electives.

Students may petition the chemistry department’s environmental science adviser to use appropriate 100- and 200-level courses taught in the chemistry department as electives.

**ENVIRONMENTAL BIOSCIENCES (GREEN) TRACK**

The environmental biosciences track provides the essential skills for entry-level positions that require a good knowledge of biotic systems and the ability to inventory biologic resources. It also provides a strong foundation for graduate or professional training in disciplines such as ecology, wildlife management, and natural resource management. The environmental biosciences track requires 33-35 s.h.

**General Science**

004:121 Organic Chemistry I 3 s.h.

Students are encouraged to take at least one semester of physics.

**Environmental Biosciences Foundation**

002:128 Fundamental Genetics 4 s.h.
- 002:131 Evolution 4 s.h.

At least 7 s.h. from these:
- 001:102 Plant-Animal Interactions 4 s.h.
- 001:105 Plant Taxonomy 4 s.h.
- 001:115 Field Mycology 4 s.h.
- 001:117 Ecology and Systematics of Diatoms 4 s.h.
- 001:128 Fish Ecology 4 s.h.
- 001:129 Vertebrate Ecology 4 s.h.
- 002:100 Plant Diversity and Evolution 4 s.h.
- 002:107 Invertebrate Biology 4 s.h.
- 002:108 Vertebrate Zoology 4 s.h.
- 002:113 Ecological Plant Anatomy 4 s.h.
- 002:119 Plant-Animal Interactions 3 s.h.
- 002:136 Science and Application of Conservation Principles 4 s.h.
- 002:140 Systems 2-3 s.h.
- 012:122 Evolution of the Vertebrates 3 s.h.

**Environmental Biosciences Field Study**

The minimum requirement is 7 s.h., with at least 3 s.h. from the field methods courses.

**Field methods:**
- 001:103 Aquatic Ecology 4 s.h.
- 001:121 Plant Ecology 4 s.h.
- 001:122 Prairie Ecology 4 s.h.
- 001:144 Ecosystems of North America 4 s.h.
- 001:160 Restoration Ecology 4 s.h.
- 001:163 Conservation Biology 4 s.h.
- 002:116 Field Ecology 4 s.h.
- 002:136 Science and Application of Conservation Principles 4 s.h.

**Field organismal courses:**
- 001:102 Plant-Animal Interactions 4 s.h.
- 001:105 Plant Taxonomy 4 s.h.
- 001:115 Field Mycology 4 s.h.
- 001:117 Ecology and Systematics of Diatoms 4 s.h.
- 001:128 Fish Ecology 4 s.h.
- 001:129 Vertebrate Ecology 4 s.h.
- 002:119 Plant-Animal Interactions 3 s.h.

**Environmental Biosciences Electives**

The minimum requirement is 8 s.h., with at least 5 s.h. from the following (3 s.h. may be chosen from the field methods or field organismal courses).

- 002:087 Spring Flora 3 s.h.
- 002:103/044:103 Biogeography 2-3 s.h.
- 002:110 Plant Physiology 3-4 s.h.
- 002:113 Ecological Plant Anatomy 4 s.h.
- 002:124 Animal Physiology 3 s.h.
- 002:140 Systematics 2-3 s.h.
- 002:143 Animal Behavior 4 s.h.
- 002:199 Introduction to Research 4 s.h.
- 002:233 Seminar: Ecology 1-2 s.h.
- 004:111 Analytical Chemistry I 3 s.h.
- 004:112 Analytical Chemistry II 3 s.h.

*06E:133 Environmental and Natural Resource Economics 3 s.h.
- 012:106 Introduction to Oceanography 2-3 s.h.
- 012:121 Principles of Paleontology 3 s.h.
- 012:173 Quaternary Environments 3 s.h.
- 225:148 Intermediate Statistical Methods 3 s.h.

**Courses**

159:008 Introduction to Environmental Science 3-4 s.h.

Biological and physical character of the Earth; interaction of humans with the environment, including impacts on ecosystems, climate, natural processes, resources; alternative options, including sustainability, waste management, energy, land reform. GE: natural sciences. Same as 012:008.

159:009 Introduction to Environmental Sciences Laboratory 1 s.h.

GE: natural sciences. Same as 012:009.

159:010 Environmental Seminar I 0 s.h.

Rule of science in environmental issues and problems; progression from observation through evaluation to design of better questions and experimentation. Prerequisite: environmental science major.

Four-Year Graduation Plan

The four-year graduation plan is not available for environmental sciences. Students work with their advisers on individual graduation plans.

**Honors**

Environmental sciences students who wish to graduate with honors must be members of the University Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information).

Requirements for the B.S. with honors in environmental sciences include a research project that culminates in an honors thesis. Students should join the honors program early to ensure that they have adequate time to complete the research project.

Before beginning the research, students must find a faculty research sponsor from one of the Environmental Sciences Program’s four participating departments (biological sciences, chemistry, geography, and geoscience). Honors students usually spend two or more semesters working on the research under the guidance of their faculty research sponsor, with enrollment in 002:196, 004:162, 012:119, or 044:195. Then they write an honors thesis based on the research. The thesis must be submitted before classes end in the student’s last semester before graduation.

Students work with their faculty research sponsor to determine the format, length, and content of the honors thesis as well as the number of semester hours the student will earn for the honors research.

Students must notify the environmental sciences honors adviser of their intent to graduate with honors by the eighth week of the semester before they graduate.
EXERCISE SCIENCE

Chair: Jerry A. Maynard
Professors: John P. Altbright (Orthopaedics and Rehabilitation/Exercise Science), Joseph A. Buckwalter (Orthopaedics and Rehabilitation/Exercise Science), Alan K. Johnson (Psychology/Exercise Science), Gary F. Hansen, N. Richard Hoazaepfel, Kevin C. Kregel, Jerry A. Maynard (Exercise Science/Orthopaedic Surgery), Kenneth E. Mobily (Leisure Studies/Exercise Science), Larry W. Oberley (Radiology/Exercise Science)
Professors emeriti: Gene M. Asprey, Donald R. Casady
Associate professors: Annunziato Amendola (Orthopaedics and Rehabilitation/Exercise Science), Kelly J. Cole (Exercise Science/Physical Therapy), Warren G. Darling (Exercise Science/Physical Therapy)
Associate professors emeriti: Gary F. Hansen, N. Richard Hoazaepfel, David K. Leslie
Assistant professors: Gina Schatteman, Don D. Sheriff, Harald Staub
Adjunct instructors: Jennifer L. Hartgrave, Matthew R. Doyle, Michael A. Shaffer
Lecturer: Danny T. Foster
Undergraduate degree: B.S. in Exercise Science, Athletic Training
Undergraduate nondegree program: minor in Exercise Science
Graduate degrees: M.S., Ph.D. in Exercise Science
Web site: http://www.uiowa.edu/~exsci

The Department of Exercise Science offers undergraduate and graduate programs in exercise science. Graduate students may choose from five different areas of specialization for the M.S. with 004:011-004:012 Principles of Chemistry I-II, and from four different areas for the Ph.D.

RECOMMENDED ELECTIVES

Exercise Science • College of Liberal Arts and Sciences

159:100 Environmental Seminar II 1 s.h.
Prerequisite: environmental science major.

159:102 Earth Surface Processes 3 s.h.
Basic geophysical, environmental processes that shape the earth’s surface; emphasis on weathering—mass movement (creep, landslides, earth flow), erosion, transport, deposition by fluid agents (wind, water, ice), methods used to study these processes. Prerequisites: 012:002 or 012:008 or 044:003 or 159:008 or consent of instructor. Same as 012:102.

159:110 Introduction to Applied Remote Sensing 4 s.h.
Remote sensing of the earth’s surface from aircraft, satellites; aerial photograph interpretation; remote sensing systems, methods, data analysis using electromagnetic spectrum and digital processing techniques, including ultraviolet, visible, infrared, microwave radiation; remote sensing applied to geologic and environmental problems. Same as 012:110.

159:134 Ecology 4 s.h.
Adaptations of organisms to their physical, biological environments; organism/environment interactions; population biology; interactions between species; ecology of communities, ecosystems; human impact on ecosystems. Prerequisites: environmental sciences majors, 002:010, 002:011, and 22M:021 or 22M:025. Same as 002:134.

159:153 Geocomputing 1-3 s.h.
Computer applications in geology, visualization, data management, interactive modeling, computer graphics. Same as 012:154.

159:194 Environmental Field Methods 3 s.h.
Same as 012:194.

Undergraduate Programs

Bachelor of Science in Exercise Science

The Bachelor of Science program is primarily designed for individuals who intend to continue their education beyond the B.S. degree in the health professions, including medicine, dentistry, optometry, physician assistant, physical therapy, and podiatry, or for those who intend to pursue graduate degrees in basic sciences related to the health care professions.

The exercise science major includes study in anatomy, biomechanics, integrative physiology, neural control of movement, and the cognate areas of biology, chemistry, mathematics, physics, and statistics.

Qualifications for admission to exercise science include completion of the following courses, with a g.p.a. of 3.00 or higher.

002:010 Principles of Biology I 4 s.h.
004:011 Principles of Chemistry I 4 s.h.
One of these:
22M:016 Calculus for the Biological Sciences 4 s.h.
22M:021 Calculus and Modeling I 4 s.h.
22M:025 Calculus I 4 s.h.
22M:031 Engineering Mathematics I: Single Variable Calculus 4 s.h.
A more advanced calculus course
One of these:
010:001-010:002 Rhetoric I-II 8 s.h.
010:003 Accelerated Rhetoric 4 s.h.
Students also must have maintained a g.p.a. of 2.75 or higher in all course work taken at The University of Iowa.

Students denied admission to the major may reapply in a subsequent semester.

GENERAL EDUCATION COURSES

The department recommends that candidates for the B.S. degree in exercise science complete the College of Liberal Arts and Sciences General Education Program natural sciences component by taking 004:011-004:012 Principles of Chemistry I-II and 002:010 Principles of Biology I. It also recommends completing the General Education Program social sciences component with 031:001 Elementary Psychology. Transfer credit for course work in the major requires the approval of the undergraduate academic advisor.

EXERCISE SCIENCE REQUIREMENTS

All of these:
027:130 Human Physiology 3 s.h.
027:141 Exercise Physiology 3 s.h.
027:142 Exercise Physiology Laboratory 2 s.h.
027:150 Gross Anatomy for Exercise Science 2 s.h.
027:151 Gross Anatomy Lab for Exercise Science 2 s.h.
027:160 Motor Control I: Neurophysiological Basis 3 s.h.
027:197 Biomechanics of Human Motion 4 s.h.
At least three of these:
027:096 Special Projects arr.
027:107 Introduction to Biomechanics 3 s.h.
027:117 Human Growth and Motor Development 3 s.h.
027:145 Cardiovascular Physiology 3 s.h.
027:146 Molecules to Malady 3 s.h.
027:153 Embryology and Connective Tissue Anatomy 2 s.h.
027:155 Skeletal Muscle Biology 2 s.h.
027:196 Exercise Science Senior Seminar 3 s.h.
027:200 Problems art.

REQUIREMENTS IN OTHER SUBJECTS (COGNATES)

Biology, chemistry, and mathematics listings include courses that are prerequisites.

Biology

Total of at least 12 s.h.
002:010-002:011 Principles of Biology I-II 8 s.h.
At least 4 s.h. from these:
002:108 Vertebrate Zoology 4 s.h.
002:114 Cell Biology 3 s.h.
002:124 Animal Physiology 3 s.h.
002:128 Fundamental Genetics 4 s.h.
002:143 Animal Behavior 4 s.h.
002:150 Endocrinology 3 s.h.
002:155 Cell Physiology 4 s.h.
002:180 Fundamental Neuroscience 4 s.h.
002:181 Neurophysiology 3 s.h.
061:157 General Microbiology 5 s.h.
099:110 Biochemistry 3 s.h.
099:120 Biochemistry and Molecular Biology I 3 s.h.

Chemistry

Total of at least 8 s.h.
004:011-004:012 Principles of Chemistry I-II 8 s.h.
These additional courses are highly recommended.
004:121 Organic Chemistry I 3 s.h.
004:122 Organic Chemistry II 3 s.h.
004:141 Organic Chemistry Laboratory 3 s.h.

Mathematics

At least 4 s.h. from these:
22M:016 Calculus for the Biological Sciences 4 s.h.
22M:021 Calculus and Modeling I 4 s.h.
22M:025 Calculus I 4 s.h.
22M:031 Engineering Mathematics I: Single Variable Calculus 4 s.h.
A more advanced calculus course

Physics

One of these sequences:
029:011-029:012 College Physics 8 s.h.
029:081-029:082 Introductory Physics I-II 8 s.h.

Statistics

At least 3 s.h. from these:
07P:143 Introduction to Statistical Methods 3 s.h.
225:101 Biostatistics 3 s.h.
225:102 Introduction to Statistical Methods 3 s.h.
171:161 Introduction to Biostatistics 3 s.h.

RECOMMENDED ELECTIVES

It is recommended that students choose from the following electives in order to complete the
120 s.h. required for a B.S. degree in the College of Liberal Arts and Sciences. Courses in biology and chemistry also are listed under “Requirements in Other Subjects (Cognates).”

### Anthropology
- 113:190 Human Osteology 3 s.h.

### Biochemistry
- 099:110 Biochemistry 3 s.h.
- 099:120 Biochemistry and Molecular Biology I 3 s.h.
- 099:130 Biochemistry and Molecular Biology II 3 s.h.
- 099:140 Experimental Biochemistry 4 s.h.

### Biology
- 002:108 Vertebrate Zoology 4 s.h.
- 002:114 Cell Biology 3 s.h.
- 002:124 Animal Physiology 3 s.h.
- 002:128 Fundamental Genetics 4 s.h.
- 002:143 Animal Behavior 4 s.h.
- 002:150 Endocrinology 3 s.h.
- 002:155 Cell Physiology 4 s.h.
- 002:180 Fundamental Neuroscience 4 s.h.
- 002:181 Neurophysiology 3 s.h.

### Chemistry
- 004:111 Analytical Chemistry I 3 s.h.
- 004:112 Analytical Chemistry II 3 s.h.
- 004:121 Organic Chemistry I 3 s.h.
- 004:122 Organic Chemistry II 3 s.h.
- 004:131 Physical Chemistry 3 s.h.
- 004:141 Organic Chemistry Laboratory 3 s.h.

### Classics
- 20E:050 Word Power: Building English Vocabulary 3 s.h.
- 20E:103 Medical and Technical Terminology 2 s.h.

### Computer Science
- 06K:070 Computer Analysis 3 s.h.
- 22C:001 Computer Literacy 3 s.h.
- 22C:005 Introduction to Computer Science 3 s.h.
- 22C:016 Computer Science I 4 s.h.
- 057:017 Computers in Engineering 3 s.h.

### Education
- 07C:185 Introduction to Substance Abuse 3 s.h.

### Engineering
- 057:010 Dynamics 3 s.h.
- 057:019 Mechanics of Deformable Bodies 3 s.h.

### English
- 08A:015 Writing for Practical Purposes for Non-English Majors 2-3 s.h.
- 08N:050 Word Power: Building English Vocabulary 3 s.h.
- 08N:080 Nonfiction Writing 3 s.h.

### Health and Sport Studies
- 028:138 Exercise Testing and Prescription 4 s.h.

### Microbiology
- 061:157 General Microbiology 5 s.h.

### Pharmacology
- 071:120 Drugs: Their Nature, Action, and Use 2 s.h.
- 071:130 Intermediate Pharmacology 3 s.h.

### Psychology
- 031:063 Abnormal Psychology: Health Professions 3 s.h.
- 031:120 Experimental Psychology I 3 s.h.
- 031:126 Behavioral Neuroscience 3 s.h.
- 031:128 Psychopharmacology 3 s.h.
- 031:129 Neurobiology of Learning and Memory 3 s.h.
- 031:152 Health Psychology 3 s.h.
- 031:163 Abnormal Psychology 3 s.h.
- 031:173 Substance Use and Misuse in America 3 s.h.

### Radiation Biology
- 077:103 Radiation Biology 4 s.h.

### Speech Pathology and Audiology
- 003:116 Basic Neurosciences for Speech and Hearing 3 s.h.
- 003:140 Manual Communication 1 s.h.

### Bachelor of Science in Athletic Training
Athletes train to work with physically active individuals, including athletes, to help prevent injuries, offer advice about appropriate equipment, recognize and evaluate injuries, administer emergency treatment, and determine need for specialized medical care. Athletic trainers also work as part of health care teams involved in rehabilitation after injuries sustained in sports or physical activity.

The major in athletic training provides concentrated studies and clinical experiences leading to national certification in athletic training. Employment opportunities for graduates include serving as health care professionals for sports medicine clinics and hospitals. Additional education usually is required for employment with professional teams as well as for university, college, and secondary school athletic teams. Teacher certification is recommended but not required.

Students who have not formally contacted the athletic training program director before enrolling at the University of Iowa should talk to an athletic training program director. Early advising is required for employment with professional teams as well as for university, college, and secondary school athletic teams. Teacher certification is recommended but not required.

### PREREQUISITES FOR COURSE WORK IN THE MAJOR
Total of 37 s.h.
- One of these: 002:002 Introductory Animal Biology 4 s.h.
- 002:010 Principles of Biology I 4 s.h.
- One of these: 004:007 004:008 General Chemistry I-II 6 s.h.
- 004:011 004:012 Principles of Chemistry I-II 8 s.h.
- One of these: 029:008 Basic Physics 4 s.h.
- 029:011 College Physics 4 s.h.

### REQUIRED MAJOR COURSE WORK
Total of 68-69 s.h.
- One of these: 027:140 Exercise Physiology for Practitioners 3 s.h.
- 027:141 Exercise Physiology 3 s.h.

### All of these:
- 071:120 Drugs: Their Nature, Action, and Use 2 s.h.
- 071:130 Intermediate Pharmacology 3 s.h.

### REQUIRED MAJOR COURSE WORK
Total of 68-69 s.h.
- One of these: 027:140 Exercise Physiology for Practitioners 3 s.h.
- 027:141 Exercise Physiology 3 s.h.

### All of these:
- 027:199 Counseling for Related Professions 3 s.h.
- 027:036-027:037 Practicum in Athletic Training I-II 4 s.h.
- 027:107 Introduction to Biomechanics 3 s.h.
- 027:130 Human Physiology 3 s.h.
- 027:143 Physiology of Nutrition (or equivalent) 3 s.h.
- 027:171 Administration of Athletic Training Programs 3 s.h.
- 027:172-027:173 Clinical Sciences I-II 3 s.h.
- 027:180 Advanced Emergency Care for Athletic Trainers 2 s.h.
- 027:182-027:183 Clinical Sciences III-IV 6 s.h.
- 027:185 Clinical Sciences V 2 s.h.
- 027:186 Practicum in Athletic Training I-II 6 s.h.
- 027:253 Advanced Human Anatomy 6 s.h.
- 076:187 Practicum in Athletic Training 8 s.h.

College of Liberal Arts and Sciences students may be admitted to the athletic training major and begin clinical experiences as sophomores. Applicants to the program must meet the following requirements:
- at least 11 s.h. of graded college credit, including 027:096 with a grade of C or higher; course work taken pass/fail cannot be counted; and
- a g.p.a. of at least 2.50 on all undergraduate course work.
Preference is given to applicants with high scholastic standing, strong writing skills, and varied athletic training and health care experience. A personal interview may be required; the athletic training program contacts applicants invited for interviews.

Fulfillment of admission requirements does not ensure admission to the athletic training major. The program selects candidates who appear to be best qualified for the study and practice of athletic training. Students denied admission to the major may reapply in a subsequent fall semester.

All students admitted to the major in athletic training are required to comply with entrance and periodic health screening history and immunization, which is coordinated through the program’s medical director.

Four-Year Graduation Plan

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

Note: Students must be admitted to the exercise science or athletic training majors on schedule in order to complete a four-year graduation plan.

B.S. in Exercise Science

Before the third semester begins: calculus, one other course in the major, and at least one-quarter of the semester hours required for graduation

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

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

Before the eighth semester begins: at least two more courses in the major

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

B.S. in Athletic Training

Before the third semester begins: three courses in the major and at least one-quarter of the semester hours required for graduation

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

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

Before the eighth semester: 12 courses in the major

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

Minor

The minor in exercise science requires at least 15 s.h. of exercise science courses with a g.p.a. of 2.00 or higher. All 15 s.h. must be earned at The University of Iowa; transfer courses are not accepted. At least 12 of the 15 s.h. must be in exercise science courses numbered 100 and above.

The service course 027:056 First Aid and CPR does not count toward the minor, nor do the specific clinical training courses involved with the Athletic Training Program (027:036, 027:037, 027:057, 027:171, 027:172, 027:173, 027:180, 027:182, 027:183, 027:184, 027:185, and 027:186). No courses accepted toward the minor may be taken pass/nonpass.

College-level courses in mathematics, chemistry, and biological sciences usually are required as prerequisite work for exercise science courses.

Students seeking a minor in exercise science should be sufficiently prepared in the supporting sciences before they take advanced courses in the department.

There is no minor in athletic training.

Graduate Programs

The department offers the Master of Science, with or without thesis, and the Doctor of Philosophy. Admission to any of the graduate programs requires an undergraduate g.p.a. of 3.00 or higher.

Master of Science Without Thesis

The program leading to the M.S. without thesis is a terminal unit of advanced study for athletic trainers.

Athletic Training Program

The nonthesis program in athletic training is designed primarily as an advanced area of study in clinical education and research for the certified athletic trainer. Emphasis is on developing and applying a research and education base to the knowledge and skills of the entry-level athletic trainer. The program focuses on a health care team approach to sports medicine, medical care management, wellness, pediatric/adolescent health, and special health populations.

The following undergraduate course work (total of 30 s.h.) is required background for the nonthesis M.S. program in athletic training. Students must maintain a g.p.a. of 3.00 for the 30 s.h.

Anatomy:
- Human anatomy (minimum requirement) 3 s.h.
- Human physiology 3 s.h.
- Athletic training core:
  - Prevention 3 s.h.
  - Evaluation and recognition 3 s.h.
  - Modalities and rehabilitation 3 s.h.
  - Administration 2 s.h.

Exercise science core:
- Neural control 3 s.h.
- Exercise physiology 3 s.h.
- Biomechanics or kinesiology 3 s.h.
- Electives in related areas 3-4 s.h.

Exercise Science

Three of these:
- 027:141 Exercise Physiology 3 s.h.
- 027:145 Cardiovascular Physiology 3 s.h.
- 027:146 Molecules to Malady 3 s.h.
- 027:150 Gross Anatomy for Exercise Science 2 s.h.
- 027:153 Embryology and Connective Tissue Anatomy 2 s.h.
- 027:155 Skeletal Muscle Biology 3 s.h.
- 027:160 Motor Control I: Neuropsychological Basis 3 s.h.
- 027:197 Biomechanics of Human Motion 4 s.h.
- 027:253 Advanced Human Anatomy 6 s.h.

Clinical Research Tools
- An approved tools or special interest area course 2-4 s.h.

Athletic Training

027:200 Problems (two registrations) 4 s.h.
- 027:202 Practicum in College Teaching 3 s.h.
- 027:301 Non-Thesis Seminar 2 s.h.

One of these:
- 07P:205 Design of Instruction 3 s.h.
- 069:133 Introduction to Human Pathology 3 s.h.
- 173:140 Epidemiology I: Principles 3 s.h.

Electives

Maximum of 4 s.h.

Master of Science With Thesis

The thesis program leading to the M.S. in exercise science is designed primarily as a first step in graduate study leading to the Doctor of Philosophy. It is a research-oriented program that introduces students to the nature and quality of research in exercise science and gives them an opportunity to specialize in an area of interest. The five areas of specialization leading to the M.S. degree with thesis are anatomy, athletic training, biomechanics, exercise and integrative physiology, and motor control.

Because the M.S. with thesis is regarded as the first step toward the Ph.D. degree in one of five areas of specialization, the required undergraduate prerequisite courses depend on the area in which the candidate intends to specialize for doctoral study. Specific courses in mathematics, chemistry, physics, biology,
Candidates must complete a minimum of 72 s.h. beyond the B.A. or B.S., including a dissertation in the area of specialization. Candidates are expected to submit an appropriate manuscript of the dissertation to a refereed professional journal for publication.

Many of the courses in the specialization areas are offered by departments other than exercise science. Professors from these departments frequently serve on comprehensive examination committees and on dissertation committees for the initial presentation of the candidate's prospectus. They also participate in the final oral examination.

**GENERAL REQUIREMENTS**

Ph.D. candidates must fulfill the following requirements.

At least 10 s.h. of independent research, exclusive of the thesis requirement.

At least 72 s.h. of graduate credit beyond the B.A. or B.S.

**CORE COURSE REQUIREMENTS**

Two approved courses in statistics

027:201 Research (minimum requirement) 6 s.h.

027:202 Practicum in College Teaching (minimum requirement) 2 s.h.

027:405 Thesis: Ph.D. 12 s.h.

650:270 Responsible Conduct in Research 1 s.h.

**SCIENTIFIC AREA COURSES**

In order to ensure that exercise science doctoral candidates obtain a breadth of knowledge over the key scientific areas that constitute the basis of the major, each student must complete at least one course in each of the areas of specialization. This requirement may be met by transfer credit if approved by the student's adviser. The areas of specialization are anatomy, biomechanics, exercise physiology, and motor control.

**ANATOMY**

002:128 Fundamental Genetics 4 s.h.

002:150 Endocrinology 4 s.h.

027:153 Embryology and Connective Tissue Anatomy 2 s.h.

027:253 Advanced Human Anatomy 6 s.h.

060:205 General History for Graduate Students or equivalent 4 s.h.

060:234 Medical Neuroscience 4 s.h.

077:103 Radiation Biology 4 s.h.

099:110 Biochemistry 3 s.h.

099:120 Biochemistry and Molecular Biology I 3 s.h.

099:130 Biochemistry and Molecular Biology II 3 s.h.

101:295 Applied Electromyography 3 s.h.

142:220 Mechanisms of Cellular Organization 3 s.h.

142:225 Mechanisms of Cell Growth and Development 3 s.h.

One of these:

003:219 Fundamentals of Laboratory Instrumentation 3 s.h.

101:212 Biomedical Instrumentation 4 s.h.

**BIOMECHANICS**

027:253 Advanced Human Anatomy 6 s.h.

057:019 Mechanics of Deformable Bodies 3 s.h.

057:020 Fluid Mechanics 4 s.h.

057:021 Principles of Design I 3 s.h.

101:212 Biomedical Instrumentation 4 s.h.

101:295 Applied Electromyography 3 s.h.

171:162 Design and Analysis of Biomedical Studies 3 s.h.

**EXERCISE AND INTEGRATIVE PHYSIOLOGY**

002:128 Fundamental Genetics 4 s.h.

002:150 Endocrinology 3 s.h.

027:141 Exercise Physiology 2 s.h.

027:142 Exercise Physiology Laboratory 2 s.h.

027:145 Cardiovascular Physiology 3 s.h.

027:146 Molecules to Malady 3 s.h.

027:241 Integrative Physiology Seminar 1 s.h.

027:253 Advanced Human Anatomy 6 s.h.

050:240 Human Organ Systems 8 s.h.

060:204 Survival Skills for Research Career 1 s.h.

060:205 General Histology for Graduate Students 4 s.h.

071:130 Intermediate Pharmacology 3 s.h.

072:153 Graduate Physiology 4 s.h.

077:103 Radiation Biology 4 s.h.

077:222 Free Radicals in Biology and Medicine 4 s.h.

099:110 Biochemistry 3 s.h.

099:120 Biochemistry and Molecular Biology I 3 s.h.

099:130 Biochemistry and Molecular Biology II 3 s.h.

099:140 Experimental Biochemistry 4 s.h.

**NEURAL CONTROL OF MOVEMENT**

027:155 Skeletal Muscle Biology 3 s.h.

027:160 Motor Control I 3 s.h.

027:197 Biomechanics of Human Motion 4 s.h.

027:253 Advanced Human Anatomy 6 s.h.

027:314 Seminar in Motor Control 2 s.h.

027:341 Seminar in Motor Control 2 s.h.

051:150 Musculoskeletal Biomechanics 3 s.h.

057:019 Mechanics of Deformable Bodies 3 s.h.

060:234 Medical Neuroscience 4 s.h.

101:212 Biomedical Instrumentation 4 s.h.

101:275 Analysis of Sensori-Motor Bodies 3 s.h.

101:285 Biomechanical Analysis in Rehabilitation arr.

101:295 Applied Electromyography 3 s.h.

Courses chosen from the following areas: computer science, neuroscience, anatomy, exercise physiology, psychology

**Facilities**

Classroom and research laboratories for anatomy, biomechanics, exercise physiology, and motor control are located in the Field House and in other buildings on campus. They provide excellent facilities for instruction and research at both the undergraduate and graduate levels.
Cooperative efforts with other departments facilitate specialization by allowing exercise science students to use additional special facilities and research equipment in other departments on campus (e.g., biology, biochemistry, orthopaedic surgery, internal medicine, pharmacology, physiology and biophysics, and the College of Engineering).

**Courses**

**Primarily for Undergraduates**

027:030 Practicum in Athletic Training I 2 s.h.
Basic clinical skill instruction, evaluation, and integration for athletic trainers. Prerequisite: athletic training major.

027:037 Practicum in Athletic Training II 2 s.h.
Integration of basic physical skills and orientation to traditional settings; clinical experience for first-year students arranged through Program in Athletic Training. Prerequisite: grade of C or higher in 027:036.

027:053 Human Anatomy 3 s.h.
General human anatomy covering most systems of the body. GE: natural sciences.

027:056 First Aid and CPR 2 s.h.
American Red Cross certification: basic first aid, CPR procedures.

027:057 Basic Athletic Training 3 s.h.
Basic pathology, epidemiology, materials biology for prevention and immediate care of athletic injuries.

027:090 Scientific Basis of Human Movement 3 s.h.
Survey of scientific principles that underlie human movement, emphasis on biomechanics of movement, roles of the neuromuscular, cardiovascular, pulmonary, and endocrine systems.

027:096 Special Projects arr.

027:117 Human Growth and Motor Development 3 s.h.
Human growth and biological maturation: focus on motor development from birth through puberty. Offered fall semesters. Recommended: a course in anatomy, human physiology, or animal biology.

**For Undergraduate and Graduate Students**

027:107 Introduction to Biomechanics 3 s.h.
Biomechanical concepts and their application to improving performance in physical activities. Offered fall semesters and summer sessions.

027:130 Human Physiology 3 s.h.
Organ system approach to physiology, with focus on normal function of the human body; information on all levels of integration, from submolecular to whole organism, with emphasis on how the intact organism functions. GE: natural sciences.

027:140 Exercise Physiology for Practitioners 3 s.h.
Effects of acute and chronic exercise on different physiological systems (energy, respiratory, circulatory, endocrine); fitness evaluation, weight-control strategies, training programs; preparation for ACSM Fitness Instructor Certification. Offered fall semesters and summer sessions. Recommended: a course in human physiology.

027:141 Exercise Physiology 3 s.h.
Mechanisms responsible for the acute and chronic effects of exercise on the different organ systems of the body. Offered fall semesters. Prerequisite: 027:130 or 072:150 or equivalent.

027:142 Exercise Physiology Laboratory 2 s.h.
Supplements 027:141; principles of scientific investigation used to demonstrate acute and chronic effects of exercise. Prerequisite: consent of instructor.

027:143 Physiology of Nutrition 3 s.h.
Metabolic and biological aspects of human energy production, relationship to energy consumption; systems or integrative approach.

027:145 Cardiovascular Physiology 3 s.h.
Structure and function of cardiovascular system; heart, microcirculation, hemodynamics, regional circulation, reflex integration, regulation during physical stress. Prerequisite: 027:130 or equivalent. Recommended: calculus and physics.

027:146 Molecules to Malady 3 s.h.
Changes in single molecules that lead to systemic physiological alterations in mammals; relationship of these changes to development, aging, exercise, and specific diseases; current methodologies for studying mammalian genetics and physiology. Prerequisite: 027:130 or equivalent.

027:150 Gross Anatomy for Exercise Science 2 s.h.
Major systems of the body with emphasis on the nervous, muscular, connective tissue systems related to movement. Offered fall semesters. Prerequisite: exercise science major.

027:151 Gross Anatomy Lab for Exercise Science 2 s.h.
Major systems of the body with emphasis on nervous, cardiovascular, muscular systems related to movement. Offered fall semesters. Prerequisite: exercise science major.

027:153 Embryology and Connective Tissue Anatomy 2 s.h.
Structure, growth, and development of connective, muscular, nerve tissues from embryologic to adult stages; specific joints, their structure and movements. Offered spring semesters.

027:155 Skeletal Muscle Biology 3 s.h.
Skeletal muscle structure, contractile mechanics, production of movement, biomechanical properties; adaptation to increased use, disuse, injury. Offered spring semesters.

027:160 Motor Control & Neurophysiological Basis 3 s.h.
Neuromotor and neurophysiological bases of human motor control; mechanisms for locomotion and posture, control of arm and hand movements, role of sensory information. Offered spring semesters. Prerequisite: a course in anatomy or human physiology.

027:171 Administration of Athletic Training Programs 2-3 s.h.
Health care supervision, professional athletic training responsibilities, philosophies in athletic health care. Offered fall semesters. Prerequisite: 027:027.

027:172 Clinical Sciences I 2 s.h.
Theoretical knowledge base in therapeutic modalities. Offered spring semesters. Prerequisite: grade of C or higher in 027:036.

027:173 Clinical Sciences II 1 s.h.
Pathology and evaluation, theory of sports-induced trauma. Offered summer sessions. Prerequisites: athletic training major and 027:172.

027:180 Advanced Emergency Care for Athletic Trainers 1-2 s.h.
Coordinated initial professional emergency response certifications for athletic trainers; recertification for those holding valid certifications. Prerequisites: Red Cross First Aid and CPR certifications, or consent of instructor.

027:182 Clinical Sciences III 3 s.h.
Theoretical and practical skill development in the area of musculoskeletal evaluation. Offered fall semesters. Prerequisites: athletic training major and 027:173.

027:183 Clinical Sciences IV 3 s.h.
Continuation of musculoskeletal evaluation, completion of EMT, chest, abdomen, and dermatologic evaluation, plus rehabilitation programs. Offered spring semesters. Prerequisite: grade of C or higher in 027:182.

027:184 Seminar in Athletic Training 1-4 s.h.
Current issues and relationships in research, education, clinical practice, six-semester sequence. Offered fall and spring semesters. Prerequisite: athletic training major.

027:185 Clinical Sciences V: Rehabilitation 2 s.h.
Rehabilitation for athletic trainers based on the theory and principles of therapeutic exercise; application of current research concepts. Prerequisites: athletic training major and 027:172. Corequisite: 027:184.

027:186 Practicum in Athletic Training III 3 s.h.
Advanced clinical skill instruction, evaluation, and integration for athletic trainers. Prerequisite: grade of C or higher in 027:037.

027:196 Exercise Science Senior Seminar 2-3 s.h.
Independent study or laboratory research in one of four areas of specialization (anatomy, biomechanics, exercise physiology, or motor control); oral and written presentation of results. Offered fall and spring semesters. Prerequisite: exercise science major.

027:197 Biomechanics of Human Motion 4 s.h.
Application of the principles of mechanics to investigation of human motion in two dimensions; system modeling, force system and equilibrium analysis, particle and rigid body kinematics, Newton’s and Euler’s equations of motion, work-energy and impulse-momentum integral principles. Offered spring semesters.

**Primarily for Graduate Students**

027:200 Problems arr.
Repeatable. Prerequisite: consent of instructor.

027:201 Research arr.
Repeatable. Prerequisite: consent of instructor.

027:202 Practicum in College Teaching arr.
Prerequisite: consent of instructor.

027:241 Integrative Physiology Seminar 1 s.h.
Current topics in cardiovascular physiology, vascular biology, free radical biology. Repeatable.

027:253 Advanced Human Anatomy arr.
Offered summer sessions.

027:274 Advanced Exercise Physiology arr.

027:275 Advanced Exercise Physiology arr.

027:301 Non-Thesis Seminar 2 s.h.
For candidates for the M.S. without thesis. Offered spring semesters.

027:314 Seminar in Motor Control arr.
Repeatable.

027:404 Thesis: M.S. 0-4 s.h.
Repeatable.

Repeatable.

**FRENCH AND ITALIAN**

Chair: Downing A. Thomas
General education language coordinators: Kathy Heilenman, Geoffrey Hope, (French), Deborah Contraida (Italian)

Professors: Wendelin Guentner, Geoffrey R. Hope, Downing A. Thomas, Steven Ungar (French and Italian/Cinema and Comparative Literature)

Professors emeriti: Janet G. Altman, Jacques A. Bourgeacq, Florindo Cerreta, Simone Delaty, John T. Nothnagle

Associate professors: Cinzia Blum, Deborah L. Contraida, L. Kathy Heilenman (French and Italian/Curriculum and Instruction), Michel Laronde, Roland Raceskis, Rosemarie Scullion (Italian and Italian/Women’s Studies)

Assistant professor: Amy Dominique Curtius

Instructor: Katja Liimatta

Undergraduate degrees: B.A. in French, Italian

Graduate degrees: M.A., Ph.D. in French

Web site: http://www.uiowa.edu/~frenchit
General Education Program foreign language component and to satisfy individual needs and interests.

Students majoring in French or Italian may combine their studies with courses in education to prepare for jobs in high school teaching. They may go on to graduate study in areas such as French, Italian, comparative literature, and other interdisciplinary areas as preparation for college-level teaching. Or they may combine other skills and studies with their major in French or Italian to prepare for challenging career opportunities in international government, business, finance, travel, communications, and other fields where the knowledge of a foreign language is essential.

**Bachelor of Arts in French**

The undergraduate major in French may be completed with an emphasis on literature, culture and civilization, teaching, language, or interdisciplinary studies.

All majors must complete the following courses (total of 10 s.h.) plus an additional 21 s.h. of course work from one of the five emphasis areas.

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>009:111</td>
<td>Introduction to Reading and Writing in Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>009:112</td>
<td>French Grammar</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>009:106</td>
<td>Oral Expression in French I</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>009:136</td>
<td>Oral Expression in French III</td>
<td>2 s.h.</td>
</tr>
</tbody>
</table>

Students must maintain a g.p.a. of at least 2.00 in all major course work, including all University of Iowa course work in the major. Majors must maintain portfolios documenting their progress toward attaining the objectives of the French major. On the basis of materials in his or her portfolio, a student may petition the department to count a literature course toward the culture and civilization distribution requirement, or vice-versa.

Transfer course work is acceptable, and students are encouraged to participate in study abroad, but the last two courses in the major ordinarily must be completed at The University of Iowa. All transfer work for application to the major is evaluated on an individual basis.

Upon declaring the major (or later, but before the senior year), students should choose an emphasis in one of the following five tracks.

**Culture and Civilization Track**

The culture and civilization track is designed for students interested in French history, politics, and culture. It is recommended for students who wish to combine studies in French with a major in another area, such as history, political science, pre-law, communication studies, or journalism.

Requirements for the culture and civilization track include the following courses in addition to the 10 s.h. of foundation course work in French. Only one of the courses may be taught in English under the French department prefix. This restriction does not apply to courses taught in English with an additional semester hour in French. At least two courses must be numbered above 009:150.

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>009:150</td>
<td>French Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>009:197</td>
<td>Techniques of Translation</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Four courses in culture/civilization

Three courses in literature or language

**Language Track**

The language track is designed for students with an interest in language and translation. Students work in specific areas such as international business, comparative stylistics, and translation.

Requirements for the language track include the following courses in addition to the 10 s.h. of foundation course work in French. Only one of the courses may be taught in English under the French department prefix. This restriction does not apply to courses taught in English with an additional semester hour in French. At least two courses must be numbered above 009:150.

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>009:115</td>
<td>Business French</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>009:197</td>
<td>Techniques of Translation</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Five courses in French

<table>
<thead>
<tr>
<th>Subject</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>culture/civilization</td>
<td></td>
</tr>
<tr>
<td>literature</td>
<td></td>
</tr>
<tr>
<td>language</td>
<td></td>
</tr>
</tbody>
</table>

Courses in French stylistics and textual analysis, another language, economics, political science, and/or business administration are recommended as adjunct electives.

**Literature Track**

The literature track is designed for students who are interested in French literature or in combining the study of French literature with a major in another area, such as English, comparative literature, cinema, or fine arts.

Requirements for the literature track include the following seven courses in addition to the 10 s.h. of foundation course work in French. Only one of the courses may be taught in English under the French department prefix. This restriction does not apply to courses taught in English with an additional semester hour in French. At least two courses must be numbered above 009:150.

Four courses in literature

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>018:101</td>
<td>Reading in English</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>018:102</td>
<td>Advanced Composition</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Three courses in culture/civilization language

**Teaching Track**

French majors interested in obtaining licensure to teach in elementary and/or secondary schools must successfully complete the requirements for a major in French in the teaching track and must be admitted to the College of Education’s foreign language teacher education program (TEP). Several courses in the College of Education are required, as is one semester of student teaching. Contact the College of Education, Division of Curriculum and Instruction, for more information.

Requirements for the teaching track include the following courses in addition to the 10 s.h. of foundation course work in French. Only one of the courses may be taught in English under the French department prefix. This restriction does not apply to courses taught in English with an additional semester hour in French. At least two courses must be numbered above 009:150.

Two courses in culture/civilization

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>018:101</td>
<td>Reading in English</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>018:102</td>
<td>Advanced Composition</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Two courses in literature

<table>
<thead>
<tr>
<th>Subject</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>culture/civilization</td>
<td></td>
</tr>
<tr>
<td>literature</td>
<td></td>
</tr>
<tr>
<td>language</td>
<td></td>
</tr>
</tbody>
</table>

Students who plan to use a French minor to teach at the elementary and/or secondary level must contact the College of Education concerning requirements. See the College of Education section of the *Catalog*.

**Interdisciplinary Studies Track**

The French interdisciplinary studies (FIS) track is designed for students with interests in French culture and in French historical, social, and cultural studies. It includes areas of French studies from a variety of fields, such as art history, comparative literature and film, francophone studies, history, linguistics, philosophy, music, and women’s studies.

Requirements for the FIS track include the following courses in addition to the 10 s.h. of foundation course work in French.

Two courses in French

<table>
<thead>
<tr>
<th>Subject</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>culture/civilization</td>
<td></td>
</tr>
<tr>
<td>literature</td>
<td></td>
</tr>
<tr>
<td>language taught in French</td>
<td></td>
</tr>
</tbody>
</table>

Five courses taught in French or English representing a coherent interdisciplinary focus in French studies (selection must be approved by student’s adviser) 15 s.h.

Students are expected to write a paper on their particular interdisciplinary focus in one of their upper-level classes, for inclusion in their portfolio.

The following courses, offered by other departments, may be taken for the FIS track. Students may petition the department to count courses other than those listed toward fulfilling the major in this track.

**Art and Art History**

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>01H:162</td>
<td>National Images: American Art to 1865</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**History**

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>16E:126</td>
<td>The French Revolutions and Human Rights</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16E:127</td>
<td>European History in Text and Film</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16E:144</td>
<td>Modern France 1870-Present</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16E:146</td>
<td>France from 1815 to the Present</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16E:148</td>
<td>Society and Gender in Europe 1750-Present</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16E:161</td>
<td>Politics and Culture in Twentieth-Century Europe</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16W:121</td>
<td>African History Since 1880</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Linguistics**

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>103:110</td>
<td>Articulatory and Acoustic Phonetics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>103:111</td>
<td>Syntactic Analysis</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>103:112</td>
<td>Phonological Analysis</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Philosophy**

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>026:121</td>
<td>Descartes</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>026:147</td>
<td>Sartre</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Political Science**

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>030:176</td>
<td>French Politics and Society</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Bachelor of Arts in Italian**

Requirements for the major in Italian total 31 s.h., as follows.

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>018:011</td>
<td>Intermediate Italian</td>
<td>8 s.h.</td>
</tr>
<tr>
<td>018:111</td>
<td>Advanced Composition and Conversation</td>
<td>8 s.h.</td>
</tr>
</tbody>
</table>
018:105 Modern Italian Fiction 3 s.h.
018:106 Modern Italian Poetry and Drama 3 s.h.
018:119 Medieval Italian Literature 3 s.h.
018:120 Medieval and Renaissance Italian Literature 3 s.h.
An additional course taught in Italian, numbered above 018:103 3 s.h.

Elementary and Secondary Teaching Licensure in Italian

Italian majors interested in licensure to teach in elementary and/or secondary schools must successfully complete the requirements for a major in Italian, including an additional 2 s.h. in either 018:013 or 018:014, and must be admitted to the College of Education’s foreign language teacher education program. Several courses in the College of Education are required, as is one semester of student teaching. Contact the College of Education, Division of Curriculum and Instruction, for more information.

Students who plan to use an Italian minor to teach at the elementary and/or secondary level must contact the College of Education concerning requirements. See the College of Education section of the Catalog.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s Four-Year Graduation Plan.

B.A. in French

Before the third semester begins: competence in first-year French and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: second-year French (009:012) and at least one-half of the semester hours required for graduation

Before the seventh semester begins: two semesters of third-year French (009:111-009:112), one or two other courses in the major, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: 009:106 and three more courses in the major; for students in the French language track, 009:115 and 009:197

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

B.A. in Italian

Before the third semester begins: competence in first-year Italian and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: competence in second-year Italian (018:012) and at least one-half of the semester hours required for graduation.

Before the seventh semester begins: four courses in the major numbered above 018:103 and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: a total of at least five courses in the major numbered above 018:103

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

Honors

The department participates in the University Honors Program. To gain admission to honors in French or Italian, a student must have a University of Iowa g.p.a. of at least 3.33 and a departmental g.p.a. of at least 3.50, and must be a member of the University Honors Program. Students register for 009:198 (in French)/018:198 (in Italian) Honors Research and Thesis, and one honors-designated course numbered above 009:160 (in French) or 018:103 (in Italian). Students must complete an honors thesis or equivalent (for example, translation, comparative stylistics, cultural studies, or research paper) in French or Italian and must present their work to a faculty committee.

Minor in French

The requirements for a minor in French are 15 s.h. with a g.p.a. of at least 2.00, with 12 s.h. taken at The University of Iowa in courses numbered 009:105 or above. Credit from the Iowa Regents’ Summer Program in Lyon is counted as University of Iowa credit. Courses taught in English do not count toward the minor in French.

Minor in Italian

The requirements for a minor in Italian are 15 s.h. with a g.p.a. of at least 2.00, with 12 s.h. taken at The University of Iowa in courses numbered 018:105 and above. All courses taken to complete the minor must be taught in Italian. Students may count 6 s.h. earned abroad in courses taught in Italian.

Summer Program in France

The department cosponsors the Iowa Regents Summer Program in France for students enrolled in any of the three Board of Regents, State of Iowa universities. Eligibility for the program requires a good basic knowledge of French (two years of college-level preparation is recommended), but students need not be French majors.

Centered in Lyon, the eight-week program combines formal class work in language skills, courses in the culture and civilization of France, and visits to points of cultural and historical interest. Students may earn 8 or 9 s.h. in the program.

Summer Program in Quebec

The department participates in the Committee on Institutional Cooperation (CIC) Summer French Program in Quebec at the Université de Laval. The CIC is a nonprofit organization whose purpose is to foster cooperative educational opportunities among the Big Ten universities and the University of Chicago. Affiliated with the Cours d’été pour non-francophones of the Université de Laval, the program is designed to offer qualified students the opportunity to increase their command of French in a French-speaking environment and to introduce them to the heritage and cultural traditions of a unique and vital segment of North American culture. The minimum prerequisite is two semesters of French.

Foreign Language House

The French and Italian department maintains close connections with the Maison Française in the International Crossroads Community at Hillcrest Residence Hall. Residents initiate cultural and educational programs with the participation of the faculty and other students, providing a unique opportunity to combine living with language learning.

Language for Nonmajors

Nonmajors who wish to study French and who have a background in the language should take the French Foreign Language Placement Test, offered during summer orientation programs and monthly by Evaluation and Examination Service. The test helps determine the level at which a student should begin French language study at The University of Iowa.

Students without a background in French should begin with 009:001.

Students who wish to complete the General Education Program’s foreign language component with French can choose from the following sequences.

009:001, 009:002, 009:011, 009:012
009:010, 009:011, 009:012

Nonmajors who wish to study Italian and who have a background in the language should consult with the department before the beginning of classes to determine the level at which they should begin Italian language study at The University of Iowa.

Students without a background in Italian should begin with 018:001.

Students who wish to complete the General Education Program’s foreign language component with Italian should complete the following course sequence: 018:001, 018:002, 018:011, and 018:012. Students with strong language-learning abilities or background in another romance language can choose the sequence 018:103, 018:011, and 018:012.
Graduate Programs

The department offers courses leading to the Master of Arts and the Doctor of Philosophy in French.

The faculty’s expertise allows for courses in the traditionally recognized historical periods of French literature, various literary genres, and critical theories as well as the francophone literatures of Canada, North and Sub-Saharan Africa, the Caribbean, and the Indian Ocean. The department has particular strengths in interdisciplinary studies, notably in the areas of comparative arts, film studies, history, and second language acquisition.

Emphasis on language proficiency, composition, and stylistics remains integral to the M.A. program. Along with the literature-centered M.A., the department offers an M.A. in French education.

For more detailed information on graduate degrees in French, consult the department’s web site. The department also publishes the Graduate Guide.

Master of Arts in French

Without Thesis

Candidates must earn a minimum of 30 s.h. of graduate credit and pass a written and oral examination. The program must include the following.

- 009:208 Introduction to Graduate Study in French 1 s.h.
- 009:209 Advanced Grammar and Lexicology 3 s.h.
- or 009:210 Comparative Stylistics 3 s.h.

At least four graduate-level literature or culture courses numbered 200 and above

With permission of the director of graduate studies and the department chair, candidates may take up to 6 s.h. of the required 30 s.h. outside the department or transfer up to 6 s.h. of course work taken at another institution.

Master of Arts in French

With Thesis

Candidates must earn a minimum of 30 s.h. of graduate credit and take a written and oral examination on their areas of study. They also must defend the thesis at the time of the comprehensive examination. The program must include the following.

- 009:208 Introduction to Graduate Study in French 1 s.h.
- 009:209 Advanced Grammar and Lexicology 3 s.h.
- or 009:210 Comparative Stylistics 3 s.h.

At least four graduate-level literature or culture courses numbered 200 and above

Candidates may earn up to 6 s.h. of the required 30 s.h. for thesis work.

A thesis prospectus must be accepted one year before the thesis is defended.

Master of Arts

in French Education

This program is intended primarily for prospective secondary school and junior college teachers. Requirements include a total of 38 s.h. of graduate credit in French. The program must include the following.

- 009:208 Introduction to Graduate Study in French 1 s.h.
- 009:209 Advanced Grammar and Lexicology 3 s.h.
- or 009:210 Comparative Stylistics 3 s.h.
- 009:234 Principles of Teaching and Learning Foreign Languages 3 s.h.
- Courses in French literature numbered 200 and above (minimum requirement) 9 s.h.

Candidates must pass a final written and oral examination.

Doctor of Philosophy

in French

The Ph.D. program is designed to prepare students for research, teaching, and professional service normally required of college and university faculty members.

To fulfill requirements for the Ph.D. degree in French, candidates must complete at least three years of graduate study, of which at least one must be spent in residence at The University of Iowa, and must earn a minimum of 72 s.h. of graduate credit, including credit earned for the M.A. They must pass a comprehensive examination and make a successful oral defense of their dissertation.

Specific requirements include the following.

Fifth semester (or equivalent proficiency) in a foreign language other than French Three graduate courses in a related field, such as another literature, history, or philosophy (minimum requirement) 8 s.h.
- 009:208 Introduction to Graduate Study in French 1 s.h.
- 009:260 Critical Theory and Practice 3 s.h.
- 009:277 Thesis (minimum requirement) 6 s.h.

Students working toward the doctorate are required to spend at least one year teaching as graduate assistants in the department.

Admission

To be considered for admission to an M.A. program in French, applicants must have completed the equivalent of The University of Iowa undergraduate major in French. The M.A. in French is prerequisite to admission to the Ph.D. program in French. Successful completion of the M.A. program, however, does not necessarily qualify a student for doctoral studies.

Applicants for fall semester whose application materials are received in the department by January 15 have the best chance to be admitted and receive financial aid. They must submit academic transcripts, letters of recommendation from three persons familiar with their past academic work, Graduate Record Examination (GRE) General Test results, a statement of purpose in taking graduate work, and one or more samples of original writing (one of which should be in French) that show their ability to pursue graduate work in French (an honors thesis, term paper, seminar paper, or other course papers).

Financial Aid

Teaching and research assistantships are offered through the department, and University fellowships and scholarships are available through the Graduate College. For information, contact the French and Italian department office.

Teaching assistants in the department must take 009:234 Principles of Teaching and Learning Foreign Languages.

Exchange assistantship agreements with the University of Haute Bretagne (Rennes), the University of Picardie (Amiens), and the University of Poitiers provide one year of residence in France for a limited number of graduate students.

Courses

A detailed description of courses offered each semester is available in the department office. French courses are conducted in French and Italian courses are conducted in Italian, unless otherwise indicated. Students may not receive credit for a course that is prerequisite to, or whose equivalent is prerequisite to, a higher-level course they have already completed.

French courses numbered 150-199 are intended primarily for advanced undergraduates; graduate students should consult with their adviser before registering for these courses.

With the exception of the interdisciplinary track, only one course in English may be used to fulfill requirements for the major. This restriction does not apply to courses taught in English with an additional semester hour in French. Consultation with the adviser is recommended before registration.

Students who have had significant experience with French through study or foreign residence are advised to consult with the department before enrolling in any French course.

French—Primarily for Undergraduates

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>009:001</td>
<td>Elementary French I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>009:002</td>
<td>Elementary French II</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>009:010</td>
<td>First-Year French Review</td>
<td>5 s.h.</td>
</tr>
<tr>
<td>009:011</td>
<td>Intermediate French I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>009:012</td>
<td>Intermediate French II</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

For students who have no knowledge of French. Offered fall semester. GE: foreign language.

Offered spring semester. GE: foreign language. Prerequisite: 009:001 or equivalent.

A year in one semester. GE: foreign language.

GE: foreign language. Prerequisite: 009:002 or 009:010 or equivalent.

GE: foreign language. Prerequisite: 009:011 or equivalent.
French—For Undergraduate and Graduate Students

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites/Restrictions</th>
</tr>
</thead>
<tbody>
<tr>
<td>009:026</td>
<td>Oral Expression in French I</td>
<td>2 s.h.</td>
<td>Prerequisite: 009:002 or 009:010 or equivalent.</td>
</tr>
<tr>
<td>009:029</td>
<td>First-Year Seminar</td>
<td>1-2 s.h.</td>
<td>Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Taught in English. Prerequisite: first- or second-semester standing.</td>
</tr>
<tr>
<td>009:030</td>
<td>Cultural Misunderstandings: France and U.S.A.</td>
<td>3 s.h.</td>
<td>Key moments in the history of relations between the United States and France, from similarities underlying democratic principles to recent divergent worldviews. Taught in English.</td>
</tr>
<tr>
<td>009:055</td>
<td>Revolutions in 19th-Century France</td>
<td>3 s.h.</td>
<td>GE: humanities. Same as 033:055.</td>
</tr>
</tbody>
</table>

French—For Undergraduate and Graduate Students

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites/Restrictions</th>
</tr>
</thead>
<tbody>
<tr>
<td>009:105</td>
<td>Third-Year French</td>
<td>3 s.h.</td>
<td>Development of reading skills in French; composition and review of basic grammar structures. Prerequisite: 009:012 or equivalent.</td>
</tr>
<tr>
<td>009:100</td>
<td>Oral Expression in French II</td>
<td>2 s.h.</td>
<td>Second in a three-course sequence. Prerequisite: 009:026 or equivalent.</td>
</tr>
<tr>
<td>009:108</td>
<td>Introduction to French Literature: Seventeenth and Eighteenth Centuries</td>
<td>3 s.h.</td>
<td>Prerequisite: 009:111 or equivalent.</td>
</tr>
<tr>
<td>009:109</td>
<td>Introduction to French Literature: Nineteenth Century</td>
<td>3 s.h.</td>
<td>Prerequisite: 009:111 or equivalent.</td>
</tr>
<tr>
<td>009:110</td>
<td>Introduction to French Literature: Twentieth Century</td>
<td>3 s.h.</td>
<td>Prerequisite: 009:111 or equivalent.</td>
</tr>
<tr>
<td>009:111</td>
<td>Introduction to Reading and Writing in Literature</td>
<td>3 s.h.</td>
<td>Development of analytical, organizational skills for interpretation of literature; readings in prose, poetry, drama, criticism; emphasis on essay writing. Prerequisite: 009:012 or equivalent.</td>
</tr>
<tr>
<td>009:112</td>
<td>French Grammar</td>
<td>3 s.h.</td>
<td>Study of word forms, sentence patterns for more accurate use of French. Prerequisite: 009:012 or equivalent.</td>
</tr>
<tr>
<td>009:113</td>
<td>French Civilization</td>
<td>3 s.h.</td>
<td>Institutions and events from the beginning of French civilization to the Renaissance. GE: foreign civilization and culture. Prerequisites: 009:111 and 009:112, or equivalents.</td>
</tr>
<tr>
<td>009:114</td>
<td>French Civilization</td>
<td>3 s.h.</td>
<td>From Renaissance to Revolution. GE: foreign civilization and culture. Prerequisites: 009:111 and 009:112, or equivalents.</td>
</tr>
<tr>
<td>009:115</td>
<td>Business French</td>
<td>3 s.h.</td>
<td>Language of economics and business; practice in business correspondence and communication, active use of business vocabulary. Offered fall semesters. Prerequisite: 009:112 or equivalent or consent of course supervisor.</td>
</tr>
<tr>
<td>009:116</td>
<td>Cinema, Society, and Culture in Twentieth-Century France</td>
<td>3 s.h.</td>
<td>French cultural and social history of the 20th century introduced through selected fictional and documentary films of the period. Prerequisite: 009:111 or equivalent.</td>
</tr>
<tr>
<td>009:118</td>
<td>Topics in French Studies I</td>
<td>3 s.h.</td>
<td>Prerequisite: 009:111 or equivalent.</td>
</tr>
<tr>
<td>009:120</td>
<td>French-Speaking Cultures</td>
<td>3 s.h.</td>
<td>Features of cultures in which French is spoken; North Africa, Sub-Saharan Africa, the Indian Ocean, Indochina, the West Indies, Canada, Europe, cinema, music, literature, the arts, the media. Prerequisite: 009:111 or equivalent.</td>
</tr>
<tr>
<td>009:130</td>
<td>Paris and the Art of Urban Life</td>
<td>3 s.h.</td>
<td>Same as 011:157, 033:130.</td>
</tr>
<tr>
<td>009:136</td>
<td>Oral Expression in French III</td>
<td>2 s.h.</td>
<td>Last in a three-course sequence. Prerequisite: 009:106 or equivalent.</td>
</tr>
<tr>
<td>009:140</td>
<td>Flash Points in French Cultural History</td>
<td>3 s.h.</td>
<td>Problems in French historical culture; political and social concerns, artistic and literary matters.</td>
</tr>
<tr>
<td>009:144</td>
<td>Tales of Love in French Literature</td>
<td>3 s.h.</td>
<td>The problematic of love, politics and politics of desire; selected works, Middle Ages to 20th century. Prerequisite: reading ability in French.</td>
</tr>
<tr>
<td>009:146</td>
<td>Francophone Cinema</td>
<td>3 s.h.</td>
<td>Introduction to the cinema of French-speaking countries outside of France, history, production, distribution, issues of colonialism, postcolonial identities, gender, social realism, diaspora, popular culture.</td>
</tr>
<tr>
<td>009:147</td>
<td>French Cinema</td>
<td>3 s.h.</td>
<td>GE: foreign civilization and culture. Prerequisite: 009:012 or equivalent. Same as 048:105.</td>
</tr>
<tr>
<td>009:148</td>
<td>Gender and Sexuality in French Cinema</td>
<td>3 s.h.</td>
<td>Cultural, historical, semantic approach to studying construction of gender identity and sexual roles in French cinema from 1900s to present. Prerequisite: 009:111 or 048:001 or 048:002 or 013:010 or consent of instructor. Same as 131:167, 131:167.</td>
</tr>
<tr>
<td>009:156</td>
<td>Pastiche and Parody</td>
<td>3 s.h.</td>
<td>History and theory of the genre, its presence in original literature, analysis of texts; creative compositions in the genre. Prerequisites: 009:111 and 009:112, or equivalents.</td>
</tr>
<tr>
<td>009:161</td>
<td>Topics in French Civilization</td>
<td>3 s.h.</td>
<td>Prerequisites: 009:111 and 009:112, or equivalents.</td>
</tr>
<tr>
<td>009:163</td>
<td>Francophone Literature of the African Diaspora</td>
<td>3 s.h.</td>
<td>Literatures and cultures of Africa, the Caribbean, and the Indian Ocean analyzed through fiction, essays, films, documentaries. Prerequisites: 009:111 and 009:112, or equivalents. Same as 129:135.</td>
</tr>
<tr>
<td>009:164</td>
<td>Québécois Literature</td>
<td>3 s.h.</td>
<td>Prerequisites: 009:111 and 009:112, or equivalents.</td>
</tr>
<tr>
<td>009:168</td>
<td>Post-Colonial Literature in France</td>
<td>3 s.h.</td>
<td>Literatures and cultures of Arabo-French (Réal) and Afro-French immigration. Prerequisites: 009:111 and 009:112, or equivalents. Same as 048:168.</td>
</tr>
<tr>
<td>009:170</td>
<td>Early Modern French Literature and Culture</td>
<td>3-4 s.h.</td>
<td>Literary representations of social trends in early modern France. Prerequisites: 009:111 and 009:112.</td>
</tr>
<tr>
<td>009:178</td>
<td>Topics in French Studies II</td>
<td>3 s.h.</td>
<td>French and/or Francophone literature or culture. Prerequisites: 009:111 and 009:112, or equivalents.</td>
</tr>
<tr>
<td>009:180</td>
<td>French Women Writers</td>
<td>3-4 s.h.</td>
<td>Prerequisites: 009:111 and 009:112, or equivalents. Same as 131:168.</td>
</tr>
<tr>
<td>009:186</td>
<td>Twentieth-Century French Poetry</td>
<td>3-4 s.h.</td>
<td>Prerequisites: 009:111 and 009:112, or equivalents.</td>
</tr>
<tr>
<td>009:187</td>
<td>Aspects of Poetry</td>
<td>3 s.h.</td>
<td>Prerequisites: 009:111 and 009:112, or equivalents.</td>
</tr>
<tr>
<td>009:188</td>
<td>Twentieth-Century French Drama</td>
<td>3-4 s.h.</td>
<td>Prerequisites: 009:111 and 009:112, or equivalents. Same as 049:180.</td>
</tr>
<tr>
<td>009:192</td>
<td>French Classical Literature</td>
<td>3 s.h.</td>
<td>Prerequisites: 009:111 and 009:112, or equivalents.</td>
</tr>
<tr>
<td>009:193</td>
<td>Literature of the Enlightenment</td>
<td>3 s.h.</td>
<td>Prerequisites: 009:111 and 009:112, or equivalents.</td>
</tr>
<tr>
<td>009:196</td>
<td>Special Work</td>
<td>arr.</td>
<td></td>
</tr>
<tr>
<td>009:197</td>
<td>Techniques of Translation</td>
<td>3 s.h.</td>
<td>Methodology of translation; comparative stylistics; original texts from English-to-French translation project. Prerequisites: 009:111 and 009:112. Same as 048:197.</td>
</tr>
<tr>
<td>009:198</td>
<td>Honors Research and Thesis</td>
<td>3 s.h.</td>
<td></td>
</tr>
</tbody>
</table>

French—Primarily for Graduate Students

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites/Restrictions</th>
</tr>
</thead>
<tbody>
<tr>
<td>009:200</td>
<td>First-Year French Review</td>
<td>3 s.h.</td>
<td>Contents of 009:001 and 009:002 in one semester.</td>
</tr>
<tr>
<td>009:201</td>
<td>Intermediate French I</td>
<td>2 s.h.</td>
<td>Development of functional ability to understand, speak, write French; emphasis on vocabulary building, culture, development of grammatical accuracy. Prerequisite: 009:010 or 009:200 or equivalent.</td>
</tr>
<tr>
<td>009:202</td>
<td>Intermediate French II</td>
<td>2 s.h.</td>
<td>Continuation of 009:201. Prerequisite: 009:011 or 009:201 or equivalent.</td>
</tr>
<tr>
<td>009:205</td>
<td>French for Reading/Research</td>
<td>3 s.h.</td>
<td></td>
</tr>
</tbody>
</table>

Italian—Primarily for Undergraduates

<table>
<thead>
<tr>
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<th>Credits</th>
<th>Prerequisites/Restrictions</th>
</tr>
</thead>
<tbody>
<tr>
<td>018:001</td>
<td>Elementary Italian</td>
<td>4 s.h.</td>
<td>For students who have no knowledge of Italian. Offered fall semesters. GE: foreign language.</td>
</tr>
</tbody>
</table>
Italian—for Undergraduate and Graduate Students

018:032 Elementary Italian II 4 s.h.
Offered spring semesters. GE: foreign language. Prerequisite: 018:001 or equivalent.

018:011 Intermediate Italian 4 s.h.
Offered fall semesters. GE: foreign language. Prerequisite: 018:002 or equivalent.

018:012 Intermediate Italian II 4 s.h.
Offered spring semesters. GE: foreign language. Prerequisite: 018:011 or equivalent.

018:013 Conversational Italian 2 s.h.
Offered fall semesters. Prerequisite: 018:002 or 018:103.

018:014 Conversational Italian II 2 s.h.
Offered spring semesters. Prerequisite: 018:011 or equivalent.

018:229 First-Year Seminar 1-2 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Taught in English. Prerequisite: first- or second-semester standing.

018:053 Special Work arr.

Italian—for Undergraduate and Graduate Students

018:103 Intensive Elementary Italian 6 s.h.
Offered spring semesters. GE: foreign language. Prerequisite: two years of another foreign language.

018:105 Modern Italian Fiction 3 s.h.
Prerequisite: 018:012.

018:106 Modern Italian Poetry and Drama 3 s.h.
Continuation of 018:105, but may be taken as independent unit. Prerequisite: 018:012 or equivalent.

018:111 Advanced Composition and Conversation 3-4 s.h.
Offered fall semesters. Prerequisite: 018:012 or equivalent.

018:112 Advanced Composition and Conversation 3-4 s.h.
Offered spring semesters. Prerequisite: 018:111.

018:114 Studies in Italian Language 3 s.h.
Prerequisite: 018:111 or equivalent.

018:119 Medieval Italian Literature 3 s.h.
Prerequisite: 018:012.

018:120 Medieval and Renaissance Italian Literature 3 s.h.
Continuation of 018:119. Prerequisite: 018:012.

018:132 Images of Modern Italy 3-4 s.h.
Survey of Italy's history since Unification; diverse aspects of modern Italian culture and society through visual and textual materials. GE: foreign civilization and culture or humanities. Prerequisite: 018:012 for students earning 4 s.h.

018:142 Topics in Italian Literature 3 s.h.
Topics chosen by genre, gender, artistic and literary movement, or regional and cultural diversity. Prerequisite: 018:111 or equivalent.

018:153 Special Work arr.

018:162 Topics in Italian Culture and Civilization 3 s.h.
Prerequisite: 018:111 or equivalent.

018:198 Honors Research and Thesis 3 s.h.

Italian—Primarily for Graduate Students

018:203 Intensive Elementary Italian 4 s.h.
Fundamentals—pronunciation, reading, writing, comprehension, speaking; content of 018:001-002 in one semester. Prerequisite: two years of another foreign language.

018:217 Studies in Italian Literature 3 s.h.

018:279 Special Work arr.

Geography

Chair: Marc P. Armstrong
Professors: Marc P. Armstrong, Rex D. Honey, George P. Malanson, R. Rajagopal (Geography/Civil and Environmental Engineering), David R. Reynolds, Gerard Rusthon (Geography/Health Management and Policy)

Professors emeriti: James B. Lindberg, Michael L. McNulty

Adjunct professor: Jerry Croft

Associate professor: David A. Bennett

Associate professor emerita: Rebecca S. Roberts

Adjunct associate professor: David E. Osterberg (Occupational and Environmental Health/Geography)

Assistant professor: Claire Pavlik

Adjunct assistant professors: Mary P. Skopiec, Peter J. Weyer

Adjunct instructor: Clifford Mussen

Undergraduate degrees: B.A., B.S. in Geography

Graduate degrees: M.A., Ph.D. in Geography

Web site: http://www.uiowa.edu/~geog

Geography is concerned with place and environment, and the ongoing processes of change within and between social and physical systems. Geography's importance to scholarly inquiry is rooted in the complexity of the social and environmental problems with which the science deals. Its analytical power comes from its ability to understand and work with complex systems and with problems that require synthesis and integration. Three concepts at the core of the discipline—space, place, and scale—provide theoretical constructs and methodological tools for a science that investigates the complex character of social and environmental phenomena.

Geographers examine issues such as distribution and consumption of natural resources, air and water quality, climate changes and ecosystem dynamics, growth and development of urban areas, population dynamics, politics and practice of international development, social justice, and gender relations. They view society and the environment as a physical/social/cultural system. They apply uniquely geographical perspectives and tools, as well as knowledge from other social and scientific disciplines, to analyze the emergent properties of these systems.

Career opportunities for majors in geography exist in government, nongovernmental organizations, and business. For example, many geographers find employment in resource management, urban and regional development, site selection, and market area analysis. They analyze problems in the distribution and interactions among physical, ecological, social, and political systems.

All geography students acquire skills in computer-based cartography and data handling (geographic information science, or GIS) that are used in the investigation and solution of many environmental and social problems.

Opportunities for students with GIS training are growing rapidly in both private and governmental organizations.

Courses in geography are commonly required of students preparing to teach at the elementary and secondary school levels and those who want to pursue careers in urban and regional planning. They also provide a background for many related professions, including law, health care, environmental or transportation engineering, and international business.

Undergraduate Programs

The geography faculty has developed an undergraduate instructional program that serves students majoring or minoring in geography as well as those in other disciplines who are interested in taking geography courses as part of a liberal education. The department also participates in a number of University interdisciplinary programs that have global, area studies, urban, or environmental components.

Bachelor of Science, Bachelor of Arts

Geography majors may work toward a Bachelor of Science or a Bachelor of Arts. Either degree is appropriate preparation for advanced training or careers in geography. Students with interests in quantitative analysis and model building should choose the B.S. degree and are encouraged to master an appropriate computer programming language.

Each student majoring in geography selects one of three programs of study: geography and social change, environmental studies, or geographic information science. The course offerings in these programs include some overlapping of requirements.

Transfer students must earn at least 15 s.h. of geography course work in residence at The University of Iowa.

GIS Laboratory

The University has established a Geographic Information System Instructional Laboratory (GISIL). Housed in the Department of Geography, the facility consists of a networked system of student workstations. Students in the environmental studies or geography and social change programs who wish to gain additional experience in the theory and application of geographic information systems (GIS) should take 044:113 Principles of Geographic Information Systems and at least an additional 6 s.h. in GIS-based courses in the Department of Geography.

General Requirements

All geography majors must complete the following courses.

One of these:
044:001 Introduction to Human Geography
044:010 The Contemporary Global System
4 s.h.

All of these:
044:003 Introduction to Earth Systems Science
044:005 Foundations of GIS
044:019 Contemporary Environmental Issues
3 s.h.

One of these:
044:150 Senior Project Seminar
044:151 Senior Thesis
3 s.h.
All majors must complete one 3 s.h. course offered by the Department of Statistics and Actuarial Science and numbered 22S:025 or above. The following are recommended:

22S:025 Elementary Statistics and Inference 3 s.h.
22S:102 Introduction to Statistical Methods 3 s.h.

Bachelor of Science students must satisfy a mathematics requirement consisting of one of the following sequences:

22M:015-22M:016 Mathematics for the Biological Sciences/Calculus for the Biological Sciences 8 s.h.
22M:021-22M:022 Calculus and Modeling I-II 8 s.h.
22M:025-22M:026 Calculus I-II 8 s.h.

All geography majors must complete one of the three programs of study described under “Geography and Social Change,” “Environmental Studies,” or “Geographic Information Science.” Students should pay close attention to prerequisites for the upper-level courses in each sequence so that they can develop and complete their programs in a timely fashion. They also should choose electives for the “Related Course Work” to avoid exceeding the College of Liberal Arts and Sciences 50 s.h. limit on the amount of credit earned in one department that can be counted toward the minimum 120 s.h. required to earn a B.S. or B.A.

Geography and Social Change

The undergraduate program in geography and social change is designed for students preparing for positions in government, nongovernmental organizations, international development agencies, and business. It also provides preparation for graduate programs in geography or planning, or for professional programs such as law, business, or policy analysis. The program provides an understanding of the increasing globalization of the modern world, including processes of urban and regional development or underdevelopment; the roles of elites, classes, institutions, and social movements; the role of the natural environment in effecting social change in different parts of the world; and the processes through which policy decisions are reached. Courses cover social and economic theories of location and regional formation, methods of spatial analysis and geographic modeling, global and regional political economy, and theories of community conflict and social change.

Students develop requisite skills in quantitative analysis and the development, management, and application of geographic information systems and computer methods. They have opportunities to work on applied problems, such as assessing sites for their growth potential, identifying the best locations for service facilities, evaluating the impact of major projects, and forecasting the populations of small areas. This concentration also gives students interested in international development the opportunity to examine competing theories intended to explain international and regional inequalities, and to investigate and evaluate the patterns and practice of development worldwide.

In addition to taking the courses required of all geography majors, students in geography and social change must complete the following.

One introductory geography course (see list) 3 s.h.
One methods course (see list) 3 s.h.
Upper-level geography courses (see list) 15 s.h.
Electives (see “Related Course Work”) 12 s.h.

INTRODUCTORY COURSES
At least one of these:
044:011 Population Geography 3 s.h.
044:015 Introduction to Political Geography 3 s.h.
044:030 The Global Economy 3 s.h.
044:035 World Cities 3 s.h.
044:094 International Development 3 s.h.

METHODS COURSE
At least one of these:
044:112 Mapping American Cities and Regions 3 s.h.
044:180 Field Methods in Physical Geography 2-4 s.h.
044:181 Field Methods in Social/Environmental Geography 3 s.h.

UPPER-LEVEL COURSES
Each geography major must earn 15 s.h. in geography courses numbered 044:101 or above (except 044:150 Senior Project Seminar and the independent study courses 044:151, 044:195, 044:198, and 044:199). Students choose courses in consultation with their advisers.

The following courses are particularly relevant for students in the geography and social change program. Students may select other courses that meet the upper-level definition above, in consultation with their advisers.

044:104 Environment and Development 3 s.h.
044:115 Cultural Geographies of North America 3 s.h.
044:124 Gender and the Environment 3 s.h.
044:131 Geography of Health 2-3 s.h.
044:132 Geography of Contemporary Europe 3 s.h.
044:133 Introduction to Economics of Transportation 3 s.h.
044:135 Urban Geography 3 s.h.
044:139 Location Models and Spatial Decision Support Systems 3 s.h.
044:162 Work, Gender, and Development 3 s.h.
044:163 Geography of the Newly Industrializing Countries 3 s.h.
044:170 Geography of Justice 3 s.h.
044:172 Development Planning and Policy 3 s.h.
044:176 Social Consequences of Global Change 3 s.h.
044:178 Consequences of Global Environmental Change* 3 s.h.
044:181 Field Methods in Social/Environmental Geography 3 s.h.
044:194 Geographic Perspectives on Development 3 s.h.

*A course chosen to fulfill one requirement cannot be used to fulfill a second.

RELATED COURSE WORK

In consultation with their advisers, students in the geography and social change program select an additional 12 s.h. or more in courses related to their academic work in geography. This work may draw from courses offered by other departments and may lead to completion of a minor in another department or a certificate in an interdisciplinary program.

Students may tailor the 12 s.h. to focus on a specific theme or area. For example, students in the geography and social change program may define a 12 s.h. cluster of courses on urban and regional issues, which might draw on courses in economics, history, sociology, and urban and regional planning with an urban or regional focus. A cluster in geographic information analysis might include computer science, management sciences, and geography courses. An international development cluster might draw on courses in economics, history, and anthropology; a nature-society relations cluster might include courses in philosophy, political science, anthropology, and women's studies; and a cluster in social theory and cultural perspectives might include courses in English, communication studies, and history.

The Department of Geography maintains lists of potential courses for these specific areas, but students may tailor the 12 s.h. requirement to their individual interests by selecting courses in consultation with their geography advisers.

Environmental Studies

The undergraduate program in environmental studies is designed for students interested in the environment from physical and sociocultural perspectives. These students may have career expectations or personal interests in resource management, physical geography, climatology, environmental policy or law, global environmental change, sustainable development, or other complex environmental issues. Career goals may involve one of the environmental professions, such as landscape ecology or climatology; environmental planning and regulation; or environmental law, policy, and politics. The program stresses the interrelationships among social and natural processes that affect the environment.

Training in field observation, remote sensing, geographical information systems, quantitative analysis/computing, and cartographic representation are included in this concentration. The program also provides a sound foundation for graduate or professional level studies in either the natural or social aspects of the environment.

In addition to taking the courses required of all geography majors, students in environmental studies must complete the following.

An introductory geography course (see list) 3 s.h.
One methods course (see list) 3 s.h.
Upper-level geography courses (see list) 15 s.h.
Electives (see “Related Course Work”) 12 s.h.
INTRODUCTORY COURSES

At least one of these:
044:011 Population Geography 3 s.h.
044:015 Introduction to Political Geography 3 s.h.
044:030 The Global Economy 3 s.h.
044:035 World Cities 3 s.h.
044:094 International Development 3 s.h.

METHODS COURSES

One of these:
*044:110 GIS for Environmental Studies: Introduction 3 s.h.
*044:180 Field Methods in Physical Geography 2-4 s.h.
*044:181 Field Methods in Social/Environmental Geography 3 s.h.

UPPER-LEVEL COURSES

Each geography major must choose 15 s.h. in geography courses numbered 044:101 and above (except 044:150 Senior Project Seminar and the independent study courses 044:151, 044:195, 044:198, and 044:199). Students choose courses in consultation with their advisers.

The following courses are particularly relevant for students in the environmental studies program. Students may select other courses that meet the upper-level definition above, in consultation with their advisers.

044:101 Climatology 3 s.h.
044:103 Biogeography 3 s.h.
044:104 Environment and Development 3 s.h.
044:105 Introduction to Environmental Remote Sensing 3 s.h.
044:121 Natural Resources Policy 3 s.h.
044:122 Environmental Conservation in the U.S. 3 s.h.
044:123 Landscape Ecology 3 s.h.
044:124 Gender and the Environment 3 s.h.
044:125 Environmental Impact Analysis 4 s.h.
044:126 Wetlands: Function, Geography, and Management 3 s.h.
044:127 Environmental Quality: Science, Technology, and Policy 3 s.h.
044:128 GIS for Environmental Studies: Applications 3 s.h.
044:129 Water Resources Management 3 s.h.
044:131 Geography of Health 2-3 s.h.
044:178 Consequences of Global Environmental Change 3 s.h.
*044:180 Field Methods in Physical Geography 2-4 s.h.

* A course chosen to fulfill one requirement cannot be used to fulfill a second.

RELATED COURSE WORK

In consultation with their advisers, students in the environmental studies program select an additional 12 s.h. or more in courses related to their academic work in geography. This work may draw from courses offered by other departments and may lead to completion of a minor in another department or a certificate in an interdisciplinary program.

For example, students in the environmental studies program may define a cluster of courses on biophysical systems, which might draw on courses in biological sciences and geoscience. A cluster in geographic information analysis might draw on courses in computer science, management sciences, and geography. An environmental management cluster might include courses in economics, law, management, and planning; an environment and development cluster might include courses in economics, geography, and anthropology; and a nature-society relations cluster might include courses in philosophy, political science, anthropology, and women's studies.

The Department of Geography maintains lists of potential courses for these specific areas, but students may tailor the 12 s.h. requirement to their individual interests by selecting courses in consultation with their geography advisers.

Geographic Information Science

The undergraduate program in geographic information science is designed for students who are preparing for positions in government agencies, nongovernmental organizations, international development agencies, and business. It also provides preparation for graduate work in geography, planning, and other disciplines. Students in this program develop an understanding of the design, implementation, and use of geographic information systems. Courses address how geographic data are acquired, stored, accessed, displayed, managed, and analyzed.

Geographic information science courses teach students to address problems such as modeling environmental systems, identifying the best locations for service facilities, assessing environmental impacts, and forecasting the populations of small areas. The Geographic Information Systems Instructional Laboratory (GISIL) is used extensively in courses to enable students to develop their expertise in the use of GIS software.

Core geographic information science courses cover methods of spatial analysis and geographical modeling and include database management and computer programming. Students supplement their work in GIS core courses through 12 s.h. of additional geography coursework. Those who choose to focus on GIS for environmental analyses select supplementary geography courses from the department's environmental studies program, while those whose main interests are in socioeconomic analyses select supplementary course work from the department's geography and social change program.

In addition to the courses required of all geography majors, students in the geographic information science program must complete the following:
044:110 GIS for Environmental Studies: Introduction 3 s.h.
044:112 Mapping American Cities and Regions 3 s.h.
044:113 Principles of Geographic Information Systems 3 s.h.

One of these:
044:128 GIS for Environmental Studies: Applications 3 s.h.
044:131 Geography of Health 2-3 s.h.
044:139 Location Models and Spatial Decision Support Systems 3 s.h.

GEOGRAPHY COURSES FOR ENVIRONMENTAL STUDIES

As described in the department's geography and social change or environmental studies programs, chosen in consultation with adviser 12 s.h.

GIS EMPHASIS ON GEOGRAPHY AND SOCIAL CHANGE

Students who elect to concentrate additional geography coursework in the geography and social change program choose courses from the following two lists.

Introductory Courses

One of these:
044:011 Population Geography 3 s.h.
044:015 Introduction to Political Geography 3 s.h.
044:030 The Global Economy 3 s.h.
044:035 World Cities 3 s.h.
044:094 International Development 3 s.h.

Upper-Level Courses

At least three of these:
044:124 Gender and the Environment 3 s.h.
044:129 Water Resources Management 3 s.h.
044:132 Geography of Contemporary Europe 3 s.h.
044:133 Introduction to Economics of Transportation 3 s.h.
044:135 Urban Geography 3 s.h.
044:162 Work, Gender, and Development 3 s.h.
044:163 Geography of the Newly Industrializing Countries 3 s.h.
044:170 Geography of Justice 3 s.h.
044:172 Development Planning and Policy 3 s.h.
044:176 Social Consequences of Global Change 3 s.h.
044:178 Consequences of Global Environmental Change 3 s.h.
044:194 Geographic Perspectives on Development 3 s.h.

GIS EMPHASIS ON ENVIRONMENTAL STUDIES

Students who elect to concentrate additional geography coursework in the environmental studies program should choose courses from the following list of upper-level geography courses.

At least four of these:
044:101 Climatology 3 s.h.
044:103 Biogeography 3 s.h.
044:104 Environment and Development 3 s.h.
044:121 Natural Resources Policy 3 s.h.
044:122 Environmental Conservation in the U.S. 3 s.h.
044:123 Landscape Ecology 3 s.h.
044:124 Gender and the Environment 3 s.h.
044:125 Environmental Impact Analysis 3 s.h.
044:126 Wetlands: Function, Geography, and Management 3 s.h.
044:127 Environmental Quality: Science, Technology, and Policy 3 s.h.
044:129 Water Resources Management 3 s.h.
044:176 Social Consequences of Global Change 3 s.h.
044:180 Field Methods in Physical Geography 3 s.h.

All of these:
06K:070 Computer Analysis 3 s.h.
06K:176 Managerial Decision Models (or equivalent) 3 s.h.
22C:016 Computer Science I 4 s.h.

Courses from the department's geography and social change or environmental studies programs, chosen in consultation with adviser 12 s.h.
Four-Year Graduation Plan

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

Bachelor of Arts

The B.A. degree requires 17 courses.

Before the third semester begins: one of the introductory courses in the major and at least one-quarter of the semester hours required for graduation

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

Before the seventh semester begins: 11 courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: 14 courses in the major

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

Bachelor of Science

The B.S. degree requires 18 courses.

Before the third semester begins: two of the introductory courses in the major and at least one-quarter of the semester hours required for graduation

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

Before the seventh semester begins: 12 courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: 15 courses in the major

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

Honors

The honors major is for students of superior ability who want to pursue studies beyond the typical undergraduate level. To graduate with honors in geography, students must become a member of the University Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information). They must be admitted to the honors program in geography by the first semester of the senior year and must maintain a g.p.a. of at least 3.33 in geography. They also must prepare and present an honors thesis, which consists of original research under the direction of a faculty member. The thesis is reviewed by a three-member faculty committee.

Students complete the thesis through a year-long tutorial in 044:198 Honors Tutorial and 044:199 Honors Thesis. The senior course 044:150 Senior Project Seminar may be substituted for 044:199 Honors Thesis. Provided the student continues work on the thesis under the direction of a faculty member.

Minor

To minor in geography, a student must complete at least 15 s.h. in geography courses with a g.p.a. of at least 2.00; 12 of the 15 s.h. must be taken at The University of Iowa in 100-level courses. Minors are encouraged to choose one of the department’s areas of concentration—geography and social change, environmental studies, or geographic information science—and to take courses in that concentration. Minors who wish further assistance in selecting courses may contact the department secretary to request assignment of a minor adviser.

Internships

The Department of Geography is a participant in the University’s internship program, which provides opportunities for undergraduate students to participate in paid and unpaid activities related to their academic programs. The Career Center works with students to develop appropriate internships.

Courses for Nonmajors

Students in the College of Liberal Arts and Sciences as well as other areas of the University may find geography courses meaningful to their own programs of study. The beginning-level courses 044:001 Introduction to Human Geography, 044:011 Population Geography, 044:019 Contemporary Environmental Issues, and 044:030 The Global Economy are approved by the College of Liberal Arts and Sciences for General Education in social sciences; 044:010 The Contemporary Global System and 044:161 African Development are approved for General Education in social sciences and foreign civilization and culture; and 044:003 Introduction to Earth Systems Science is approved for General Education in natural sciences. These courses serve as part of a liberal education.

Other courses may be attractive as individual electives. These include 044:015 Introduction to Political Geography, 044:035 World Cities, 044:124 Gender and the Environment, and 044:132 Geography of Contemporary Europe.

Graduate Programs

The department’s graduate programs prepare students to carry on creative and productive research in selected areas of geography. University of Iowa graduates hold positions on college and university faculties, in private research organizations, and in business and government. The department provides opportunities for graduate students to gain practical teaching experience through service as departmental teaching assistants or graduate instructors.

Graduate students present research papers at conferences and have regularly won awards. Students are involved in faculty research leading to coauthored publications, and they also publish their own. Graduate students compete successfully for intramural and extramural funding for graduate education and research.

Programs of Study

The Department of Geography focuses on investigating the environmental consequences of human decisions on local, regional, and global scales. Geographical information science and the theories and models of environmental and social sciences are central to the department’s studies. Within this broad domain of geography, the department is developing strengths in environmental justice, environmental modeling, land use and its environmental consequences, health geography, and information technology and development.

The B.A. or B.S. degree in geography is not a prerequisite for entry into the program, but students are expected to have an undergraduate background relevant to pursuing graduate work in geography. A strong background in any of the social or environmental sciences and an interest in exploring the regional and spatial perspectives characterizing modern geography are more important than the particular disciplinary orientation of the student’s baccalaureate degree.

Depending on the strength and suitability of their prior training, however, students may be required to take courses that are prerequisites for courses in their elected areas. Credit received for such courses cannot be applied to the requirements for a degree.

Master of Arts

The M.A. is designed to be completed in four semesters. It requires a minimum of 30 s.h. of graduate work, but students accumulate 40-48 s.h. of graduate credit in completing the degree. Students use these additional hours to increase their breadth of knowledge in geography and to tailor their programs of study to their individual interests. A maximum of 6 s.h. may be earned for thesis work.

Graduate students demonstrate competence by completing appropriate course work; and completing an M.A. exam, or completing and defending an M.A. thesis, or completing the comprehensive exams for the Ph.D.

Doctor of Philosophy

The Doctor of Philosophy program is designed to prepare students for positions in college and university teaching and in advanced research. It provides programs of study leading to broad knowledge of a field of geography and its literature and special expertise in a specific subfield.

The Ph.D. is a four- to five-year postbaccalaureate program that requires a total of 72 s.h. of graduate credit. Students can enter the program directly from the B.A. or B.S. or with advanced standing corresponding to their previous graduate education.
Before students can be admitted formally to candidacy for the Ph.D., they must submit an original research paper to a faculty committee for approval. Students who complete an M.A. or M.S. thesis can submit it to fulfill this requirement. Before taking the comprehensive examination, which consists of both written and oral components, each student must submit an area review paper to his or her Ph.D. committee. This paper, which must be approved by the student’s Ph.D. advisor, consists of a critical review of research in the student’s area of concentration.

The comprehensive examination covers both the student’s area of concentration and his or her more general field in the discipline. After obtaining the approval of a dissertation supervisor, the student must submit a dissertation proposal to his or her dissertation committee for its critical comments and approval. The student then must complete and defend the dissertation.

Admission

The department adheres to the general rules and regulations set forth in the Manual of Rules and Regulations of the Graduate College. Applicants must submit their graduate transcript with grade-point average, scores on the Graduate Record Examination (GRE) General Test, three letters of recommendation, and an essay in which the applicant sets forth his or her reasons for wanting to study geography at The University of Iowa.

International applicants are required to take the Test of English as a Foreign Language (TOEFL) and arrange to have official scores sent to the University’s Office of Admissions.

Financial Support

A number of graduate appointments as teaching or research assistants are available. In addition, there are several fellowships for outstanding applicants and underrepresented minorities. Awards are based on merit. In making awards, the department pays particular attention to grade-point average—especially for the junior and senior years, GRE score, letters of recommendation, and how well the student’s objectives fit with departmental specializations. Applications for graduate appointments must be received by January 1. Applicants for fellowships should submit their applications by January 15.

Facilities

The department houses three geographic information computational laboratories. These specialized laboratories support a variety of GIS software packages, including ARC/INFO, Arc/View, MGE, IdriSt, MapINFO, Transcad, and MapGuide.

The Geographic Information Systems Instructional Laboratory (GISIL) is equipped with 20 networked NT workstations, instructional support technology (e.g., CRT projection), and a suite of peripherals. The GISIL also contains high-end visualization equipment in the form of an ImmersaDesk, which provides users with access to full 3-D immersion for work in virtual environments.

Environmental modeling and GIS research laboratories contain Wintel machines. Digitizers, scanners, plotters, and printers are also available in the department.

The department participates in an advanced GIS and modeling facility in the Center for Global and Regional Environmental Research. The University of Iowa is a charter member of InterNet2, with a high-performance network link to the Department. The University also is a member of the University Consortium on Geographic Information Science.

For studies in water resources and physical geography, the department has a laboratory for analysis of vegetation, sediment, soil, water quality, and tree-rings, and a variety of field equipment, including portable meteorological stations and data loggers.

The map collection in the University’s Main Library contains more than 115,500 maps, a total of 3,600 atlases and reference works, and about 100,000 aerial photographs, primarily of Iowa.

Courses

Primarily for Undergraduates

044:001 Introduction to Human Geography 4 s.h.
Application of geographic principles to contemporary social, economic, and political problems; urban growth; problems of the ghetto, diffusion of innovations; territoriality and perception. GE: social sciences.

044:003 Introduction to Earth Systems Science 4 s.h.
Elementary principles of physical geography: physics of weather and climate, hydrological systems, geomorphological and geological forces, pedological processes, and ecological processes and patterns; geographic explanation of physical environment, with principles applied to the human use system; environmental pollution and natural hazards. GE: natural sciences.

044:005 Foundations of GIS 3 s.h.
Cartography, map analysis, and geographic information systems; map projections and scale; data collection, remote sensing, GPS; data structures and organization; cartometry; symbolization and visualization.

044:010 The Contemporary Global System 4 s.h.
Problems of the global system and ways to address them; global economy and environment, state and security, social justice and human rights. GE: foreign civilization and culture or social sciences.

044:011 Population Geography 3 s.h.
Spatial considerations of population growth and distribution; minorities within a population; poverty, housing, social organization and demography; social systems, including education, religion, recreation, medical and social services; diffusion of ideas and traits over space. GE: social sciences.

044:015 Introduction to Political Geography 3 s.h.
Emphasis on application of geographical and economic theory in understanding historical development and restructuring of political economies at global, national, and local levels; development of nation states, nationalism, imperialism, geopolitics, economic restructuring, and economic geography.

044:019 Contemporary Environmental Issues 3 s.h.
Political, economic, cultural, technological, ecological, and ethical issues associated with natural resource and environmental problems, including population, global climate change, food production, tropical deforestation, soil erosion, waste management. GE: social sciences.

044:030 The Global Economy 3 s.h.
Location and spatial organization of the world’s major types of economies; agriculture, energy and minerals, manufacturing, transportation; trade and service centers. GE: social sciences.

044:035 World Cities 3 s.h.
Urbanization as a process; specific concepts and theories of urbanization through global patterns, regional urban systems, individual metropolitan areas.

044:094 International Development 3 s.h.
Theories of international development, political economy, development policy and planning, empirical analysis of conditions, policies, experiences of selected Third World countries. Prerequisite: social science GE.

044:100 Readings for Undergraduates arr.
Supervised readings in geography. Prerequisite: consent of instructor.

For Undergraduate and Graduate Students

044:101 Climatology 3 s.h.
Boundary layer processes that drive atmospheric dynamics; exchanges of energy and water at simple and complex surfaces; global climate change records, theories, models; impacts of climate on society. Prerequisite: 044:003 or consent of instructor. Same as 012:104.

044:103 Biogeography 2-3 s.h.
Distribution and abundance of plants and animals, spatial patterns and processes, and temporal dynamics of succession, response to climate change, and evolution; methods applied to the study of vegetation and plant community patterns. Prerequisite: 044:003 or 002:001 or consent of instructor. Same as 002:103.

044:104 Environment and Development 3 s.h.
Environmental impacts of industrial and rural development explored through Third World case studies (Latin America, Africa, South and East Asia); environmental degradation from perspectives of political economy and ecology; class, gender, and indigenous peoples’ issues; industry-agriculture linkages.

044:105 Introduction to Environmental Remote Sensing 3 s.h.
Basic concepts and principles of remote sensing; sources of data, georegistration, digital processing and classification of remotely sensed images for extraction of environmental information; linkage of remote sensing techniques with GIS analysis.

044:106 Foundations of GIS 3 s.h.
Cartography, map analysis, and geographic information systems; map projections and scale; data collection, remote sensing, GIS; data structures and organization; cartometry; symbolization and visualization.

044:110 GIS for Environmental Studies: Introduction 3 s.h.
Methods of managing and processing geographic information for environmental analysis; basic concepts of Geographic Information System (GIS), basic analytical techniques, and hands-on experience in GIS operations. Prerequisite: 044:005 or consent of instructor.

044:112 Mapping American Cities and Regions 3 s.h.
Foundation concepts for GIS-based analysis of urban, social, and economic data for the United States; geo-referenced sources of U.S. national and state data; application to contemporary social issues. Prerequisite: 044:005 or consent of instructor.

044:113 Principles of Geographic Information Systems 3 s.h.
Issues in establishment of geographic information systems: spatial data encoding, raster/vector options, spatial and attribute resolution, cartographic data models, linkages to spatial analysis procedures, display techniques for decision support, institutional setting. Prerequisite: 044:005 or consent of instructor.

044:115 Cultural Geographies of North America 3 s.h.
Historical and contemporary perspectives on the contested cultural geographies of North America; processes underlying the social construction and reproduction of place, region, and place-based identities. Same as 045:116.

044:121 Natural Resources Policy 3 s.h.
Geographic, cultural, political, economic, and ethical dimensions of natural resources policy; substantive and theoretical insights from the natural sciences, social sciences, and humanities as parts of a conceptual framework for analyzing current resource problems from a geographic perspective; U.S. natural resource problems and policy questions.

044:122 Environmental Conservation in the U.S. 3 s.h.
Varied natural environments of the United States; problems arising from conflicting land uses; consideration of public land use policy, environmental impacts of different land uses, problems of habitat preservation and endangered species. Prerequisite: 044:003 or 044:019 or consent of instructor.
Geography • College of Liberal Arts and Sciences
044:123 Landscape Ecology

3 s.h.

Effects of spatial pattern on spatial processes in ecology;
characteristics of matrix, patch, corridor; fragmentation,
deforestation, habitat loss; spatial flows of energy, matter, genetic
information; relationship to human impact, global climate change.
Prerequisite: 044:103 or a 100-level course in ecology.

044:124 Gender and the Environment

3 s.h.

Relationships between gendered human activities and
environmental problems in developed and less-developed regional
contexts; women’s work, environment, development, role of
women’s activism in environmental movements; science, gender,
knowledge of the environment; ecofeminist perspectives.
Prerequisite: an introductory environmental studies or women’s
studies course. Same as 131:124.

044:125 Environmental Impact Analysis

4 s.h.

Environmental impact assessment methodologies; emphasis on
cost-benefit-risk, cost-effectiveness and incremental analysis, and
overlay and graphic techniques; optimal resource use, system
simulation; field trips to local environmental control facilities.
Prerequisites: 044:019, and 029:005 or equivalent. Same as
102:125.

044:126 Wetlands: Function, Geography, and
Management

3 s.h.

Biotic aspects of water resources production; geographical basis of
biophysical processes in drainage basins; spatial aspects of stream
ecology; regional characterization of wetland structure and
process. Prerequisite: 044:101 or 044:103. Same as 012:126.

044:127 Environmental Quality: Science,
Technology, and Policy

3 s.h.

Geographical perspectives in the study and interpretation of
chemicals in the environment; environmental standards under
existing laws; local, regional, national, international case studies
in environment and health; socioeconomic and institutional
considerations in designing environmental protection strategies.
Prerequisite: 22S:025 or equivalent or consent of instructor.

044:128 GIS for Environmental Studies:
Applications

3 s.h.

044:150 Senior Project Seminar

044:151 Senior Thesis

044:162 Work, Gender, and Development

1-3 s.h.

044:132 Geography of Contemporary Europe

3 s.h.

3 s.h.

Gender and class considered through political economy,
gender-development theory, and institutional economics; global
processes of First/Third World development analyzed; focus on
class, gender, and collective action in cooperative enterprises,
factory workplaces, and social movements. Prerequisite: 044:094
or graduate standing.

044:163 Geography of the Newly Industrializing
Countries

3 s.h.

Newly industrializing countries (NICs) in geographic and
historical perspectives; U.S. manufacturing base as a backdrop in
NICs industrialization; off-shore industrial production, women in
development, import-substitution industrialization (ISI), export-led
industrialization, theories of industrial location, high-technology
industries, the international division of labor; regional profiles
taken from the Pacific Rim, Chile, Brazil, Mexico. Prerequisite:
044:030 or 044:094 or consent of instructor.

044:164 The Middle East

3 s.h.

Middle East cultures, political economy, conflict; significance of
the Middle East in world affairs, vice versa.

044:170 Geography of Justice

3 s.h.

Geographical analysis of social and environmental justice; justice
from various cultural perspectives; cultural struggles over human
rights.

Same as 175:101.

Provision of health care in selected countries, with particular
reference to the Third World; focus on problems of geographical,
economic, cultural accessibility to health services; disease ecology,
prospective payment systems, privatization, medical pluralism.
Same as 152:131.

044:198 Honors Tutorial

arr.

Individual study.

044:199 Honors Thesis

arr.

3 s.h.

Problems of economic, political, spatial integration in Africa;
patterns and processes of economic development and nation
building. GE: foreign civilization and culture or social sciences.
Prerequisite: 044:094. Same as 030:146.

044:129 Water Resources Management

044:131 Geography of Health

locational analysis, water resources, economic geography,
demographic analysis, environment, urbanization, transportation.

Original research. Prerequisite: honors standing.

044:161 African Development

044:172 Development Planning and Policy

Application of hydrological information in water resources
management; aspects of water quantity and quality, groundwater
availability, water use and treatment, resource development,
political and administrative issues; basin management
problems—forestry, agriculture, urbanization, floods, droughts.
Prerequisite: 044:121 or 044:122 or equivalent.

3 s.h.

Original research. Prerequisites: senior standing and consent of
instructor.

Applications of Geographic Information System (GIS) techniques
in environmental change analysis (especially land use/cover
change), environmental assessment, hazard/risk analysis,
environmental decision making. Prerequisite: 044:110 or consent
of instructor.

3 s.h.

3 s.h.

Development of a research project and preparation of a research
report. Offered spring semesters. Prerequisite: senior standing.

85

3 s.h.

Explicit and implicit strategies for economic and social
development: origins, goals, formulation, execution, results;
policy analysis methods. Prerequisites: 22S:025 and 044:094.

044:174 Health, Work, and Environment
044:176 Social Consequences of Global Change

3 s.h.
3 s.h.

arr.

Supervised readings by graduate students in topics of their choice.
Prerequisite: consent of instructor.

044:210 Philosophy and Epistemology in
Geography

3 s.h.

Analysis of philosophies and methodologies of modern geography,
with emphasis on epistemological and ontological issues;
discussion of positivism (empiricism), its variants, and its
alternatives in light of past and current research.

044:225 Environmental/Social Systems Analysis

3 s.h.

Linear optimization and related models; recent applications in
water resources management, pollution control, economics,
public policy; potential future applications in designing water
quality monitoring networks. Prerequisite: consent of instructor.

044:226 Advanced Biogeography

3 s.h.

Current questions on spatial distribution of organisms, spatial
patterns of biodiversity, environmental gradients.

044:227 Environmental Quality: Science,
Technology, and Policy

3 s.h.

Geographical perspectives in the study and interpretation of
chemicals in the environment; environmental standards under
existing laws; local, regional, national, international case studies
in environment and health; socioeconomic and institutional
considerations in designing environmental protection strategies.

044:246 Advanced Landscape Ecology

3 s.h.

044:263 Agrarian Change, Food, and
Globalization

3 s.h.

Indigenous people, peasant and rural development; gender
development theory, agriculture/industrial links, state policy and
rural politics, cooperative rural development, rural social
movements, (bio)technological change and environmental
degradation.

044:265 Transportation Regulation and Finance
3 s.h.

Physical components of global change, their relationship to
environmental policy concerns; consequences manifested on
local, regional, international scales. Prerequisites: 044:003 or
159:008, and 044:019; or consent of instructor.

044:180 Field Methods in Physical Geography

044:200 Readings

Current questions of effects of spatial structure on ecological
processes; ecotones and boundaries, metapopulations, pattern
metrics.

Social consequences of economic, political transformation;
urbanization, technological change, and penetration of global
capital, their impacts on gender relations, ethnic identity and
significance, other social structures.

044:178 Consequences of Global Environmental
Change

For Graduate Students

2-4 s.h.

3 s.h.

Public policy options for improving passenger and commodity
movements within and between cities; air, water, land-based
transportation modes. Same as 102:265.

044:275 Development Policy and Planning in the
Third World

3 s.h.

Development policies and planning in Third World countries;
important development problems and alternative perspectives on
problems and proposed solutions; interdisciplinary seminar. Same
as 07B:275, 034:275, 042:275, 102:275, 113:275.

Physical demographic, and ethnic/cultural landscapes of
contemporary Europe; national economies and European
economic and social integration; transformation of Eastern
Europe; comparison of European and U.S. economic development
and social policies.

Methods of measuring climate, vegetation, soil, landforms, water;
projects in areas including field meteorology, tree-ring sampling,
topographic surveying, vegetation sampling, water quality
sampling, use of global positioning systems; introduction to
research design.

044:133 Introduction to Economics of
Transportation

044:181 Field Methods in Social/Environmental
Geography

3 s.h.

Geographical information systems for health surveillance; spatial
patterns of mortality, morbidity; ways of evaluating geographical
accessibility problems of special populations. Same as 152:281.

044:183 Quaternary Environments

3 s.h.

044:285 Crossing Borders Seminar: Introductory

3 s.h.

Overview of transportation markets (intercity, rural, urban) and
transportation modes (railroads, highways, air carriage,
waterways); regulation, finance, physical distribution issues. Same
as 06E:145, 102:133.

044:135 Urban Geography

3 s.h.

Same as 012:173.

044:186 Soil Genesis and Geomorphology

3 s.h.

044:188 Applied Geostatistics

044:136 Planning Livable Cities

Theoretical and empirical studies of the regional development
process, with emphasis on developing countries; alternative
regional development theories and changes in development
theories in the literature of geography, related disciplines.
Prerequisites: satisfaction of introductory geography and social
change requirements, or consent of instructor.

Same as 102:101.

044:139 Location Models and Spatial Decision
Support Systems

3 s.h.

Application of location models within GIS environments to
support decision making; small area demographic forecasting,
location-allocation models, regionalization problems, shortest path
models, other spatial analysis methods used to support spatial
decisions. Prerequisite: 044:005.

3 s.h.

3 s.h.

3-4 s.h.

Repeatable. Same as 01H:230, 008:230, 013:264, 016:293,

044:286 Crossing Borders Seminar

Same as 012:136.

Central ideas of modern urban geography, their links to social
theory; focus on interrelation between social change, urban
environment; evolution of urban systems, emergence of the
capitalist city, urban social and residential differentiation, local
politics of uneven development.

3 s.h.

044:281 Medical Geography

3-4 s.h.

Repeatable. Same as 01H:247, 008:231, 013:262, 016:247,

Same as 012:178.

044:194 Geographic Perspectives on
Development

044:195 Undergraduate Research

044:287 Crossing Borders Pro-Seminar
3 s.h.

044:296 Topics in Geographic Information
Science

Contemporary fields of inquiry, such as political economy,
regional/African development, biophysical systems, GIS,

3 s.h.

Current theoretical research issues in geographic information
science; intensive readings. Repeatable. Prerequisite: 044:113 or
consent of instructor.

arr.

044:297 Special Topics

arr.

Contemporary fields of inquiry, such as political economy,
regional/African development, biophysical systems, GIS,
locational analysis, water resources, economic geography,
demographic analysis, environment, urbanization, transportation.

Supervised research in geography. Prerequisite: consent of
instructor.

044:197 Special Topics

1 s.h.

Same as 01H:330, 013:260, 016:244, 030:243, 035:271,
048:244, 113:248.

044:315 Research Seminar: Political Geography

arr.

arr.


degree is fully satisfactory in certain teaching, government, and industrial situations.

Many of The University of Iowa’s geoscience graduates find employment with resource companies, environmental corporations, and educational institutions. Others continue in graduate school or take jobs with government or conservation agencies. Some intend to enter law, business, or fields such as urban planning, environmental studies, engineering, archaeology, science education, or oceanography as advanced areas. Geoscience provides skills useful for all of these.

Each year more than 1,500 students enroll in 012:003 Earth History and Resources, 012:004 Evolution and the History of Life, 012:005 Introduction to Geology, 012:007 Age of Dinosaurs, 012:008 Introduction to Environmental Science, and 012:114 Energy and the Environment, all courses approved by the College of Liberal Arts and Sciences for General Education in natural sciences.

For nonmajors, the department offers a lecture sequence featuring a general survey of geoscience (012:001, 012:006, 012:008) and several intermediate courses with few prerequisites—palentology (012:121), oceanography (012:108), remote sensing (012:110), earth surface processes (012:102), and energy and the environment (012:114).

Many of the department’s faculty members are involved in the interdisciplinary Environmental Science Program.

The department offers programs leading to the Bachelor of Science and the Bachelor of Arts. Geoscience majors receive at least an academic year’s work in three allied scientific areas—physics, chemistry, and mathematics—and a semester of biological sciences in addition to a course in each major area of geology.

Students majoring in geoscience must complete the College of Liberal Arts and Sciences General Education Program. It is recommended that they complete the foreign language component with a semester of biological sciences (these are minimum requirements). Students with an interest in paleontology are encouraged to take 004:011-004:012 Principles of Chemistry I-II.

RECOMMENDED OPTIONS
All B.S. candidates should take elective courses from the following groups in order to broaden their undergraduate experience and prepare themselves for graduate study or professional employment. Students who have clear career goals are advised to take three or more elective courses from the group that fits their needs most closely. Students also may seek a broad education in geoscience by choosing elective courses from a number of groups.

Bachelor of Science
The Bachelor of Science in geoscience is designed to prepare students for immediate employment after graduation or for entering a graduate program in geology. The B.S. requires a minimum of 38 s.h. of departmental work, including the following course work.

One of these:

- 012:003 Earth History and Resources 4 s.h.
- 012:005 Introduction to Geology (preferred) 4 s.h.

All of these:

- 012:004 Evolution and the History of Life 4 s.h.
- 012:041 Mineralogy 4 s.h.
- 012:052 Petrology 4 s.h.
- 012:092 Structural Geology 4 s.h.
- 012:093 Geologic Field Methods 2 s.h.
- 012:113 Summer Field Course 6 s.h.
- 012:121 Principles of Paleontology 3 s.h.
- At least two geoscience electives 6-7 s.h.

At least 8 s.h. of calculus, including one of these:

- 22M:022 Calculus II 4 s.h.
- 22M:026 Calculus II 4 s.h.
- 22M:032 Engineering Mathematics II: Multi-Variable Calculus 4 s.h.

An additional course in mathematics (numbered 22M:027 and above), computer science (numbered 22C:005 and above), or statistics (numbered 22S:030 and above) also is required.

B.S. students must complete the following course work in chemistry, physics, and biological sciences (these are minimum requirements).

At least 8 s.h. of college-level chemistry is required, including the following, equivalent courses, or more advanced courses; chemistry courses numbered below 029:011 cannot be used to satisfy the chemistry requirement for the B.S. in geoscience.

- 004:011-004:012 Principles of Chemistry I-II 8 s.h.

At least 8 s.h. of college-level physics is required, as follows: physics courses numbered below 029:011 cannot be used to satisfy the physics requirement for the B.S. in geoscience.

One of these sequences:

- 029:011-029:012 College Physics 8 s.h.
- 029:081-029:082 Introductory Physics I-II 8 s.h.

At least one biological science course that includes a laboratory 4 s.h.

Students with an interest in paleontology are encouraged to take 002:010-002:011 Principles of Biology I-II.

Geoscience

Chair: Ann F. Budd

Professors: Ann F. Budd, C. Thomas Foster Jr., Philip H. Heckel


Adjunct professor: David L. Campbell


Adjunct associate professors: Scott J. Carpenter, Gregory A. Ludwigson, Brian J. Witze

Assistant professors: Christopher A. Brochu, Jeffrey A. Dorale, Jane A. Colotti, Walter A. Ilman, David W. Peate


Visiting assistant professors: Martin S. Appold, Ingrid Peate, Christian V. Shorey

Adjunct instructor: Tiffany Aadrin

Undergraduate degrees: B.A., B.S. in Geoscience

Undergraduate nondegree program: minor in Geoscience

Graduate degrees: M.S., Ph.D. in Geoscience

Web site: http://www.uiowa.edu/~geology

Geoscience faculty and students study the many physical, chemical, and biological systems that compose the earth. Using modern observational, analytical, and computational methods, they examine how the planet’s interior, surface, hydrosphere, and atmosphere have evolved since the earth was born in the solar system 4.6 billion years ago. Topics commonly studied in the department include how plate movements cause earthquakes, volcanoes, and mountain building; how global climate change and catastrophic events cause changes in biodiversity; how and where economic resources are generated in the earth; and how these resources are located and used in modern society.

The geoscience curriculum provides students with hands-on experience analyzing rocks, minerals, fossils, soils, and waters, generally in a small classroom setting. Much of this experience is obtained in laboratory and field courses. Field courses include travel to other states or countries to view earth materials and fossils in the context of their natural surroundings.

The master’s degree is regarded by most hiring agencies as the working degree. The doctoral degree is required for college and university teaching positions. However, an undergraduate
The Bachelor of Arts degree in geoscience is designed to provide students with a varied background in geology and a broader choice of electives than is practical in the B.S. program. The B.A. is intended for students who are interested in the fundamentals of geology or earth science teaching (see the College of Education section of the Catalog). Completing the minimum requirements for this degree may not adequately prepare a student for an entry-level professional job in geology. The B.A. requires a minimum of 35 s.h. of departmental work, including the following required course work.

*One of these:

012:003 Earth History and Resources 4 s.h.
012:005 Introduction to Geology 4 s.h.
012:008 Introduction to Environmental Science 4 s.h.

*Students may not earn credit for both 012:003 and 012:005, but they may earn credit for 012:008 in addition to either 012:003 or 012:005. Students planning careers in the environmental sciences should take 012:008 (see the Environmental Sciences section of the Catalog).

**FIELD REQUIREMENT**

To complete the major, students must have field experience. They may take two semesters of 012:018 or 012:116, or one semester of each of these courses (total of 4 s.h.). Or they may take one semester of 012:093, 012:113, 012:195, or the Lakeside session.

012:018 Geology Field Trip: Selected National Parks 2, 4 s.h.
012:116 Field Trip 2, 4 s.h.
012:093 Geologic Field Methods 2 s.h.
012:113 Summer Field Course 6 s.h.
012:195 Field Methods: Environmental Processes 2-4 s.h.

One natural science course at Iowa Lakeside Laboratory
Mineralogy, 012:052 Petrology, and 012:092 Structural Geology are considered advanced courses for the minor.

College-level courses in mathematics, physics, chemistry, and biological sciences usually are required as collateral work for geology students. Those seeking a minor in geoscience should be sufficiently prepared in the areas of supporting sciences before they take advanced courses in geoscience.

Recommended advanced courses in geoscience that deal with important areas of earth materials and earth processes are as follows.

- 012:041 Mineralogy, 4 s.h.
- 012:052 Petrology, 4 s.h.
- 012:092 Structural Geology, 4 s.h.
- 012:102 Earth Surface Processes, 3 s.h.
- 012:108 Introduction to Oceanography, 2 s.h.
- 012:114 Energy and the Environment, 3 s.h.
- 012:121 Principles of Paleontology, 3 s.h.
- 012:130 Sedimentary Geology, 3 s.h.
- 012:131 Solar Genesis and Geomorphology, 3 s.h.
- 012:138 Fluvial Geomorphology, 3 s.h.
- 012:139 Integrated Watershed Analysis, 3 s.h.
- 012:149 Elements of Geochemistry, 3 s.h.
- 012:161 Stratigraphy, 3 s.h.
- 012:180 Principles of Geophysics, 3 s.h.
- 012:191 Geotectonics, 3 s.h.

**Joint Programs**

Joint programs can be arranged, usually with chemistry, physics, biological sciences, environmental engineering, environmental science, and anthropology.

**Independent Research**

A junior or senior who is ready to pursue independent research for credit in geoscience may assist a faculty member or graduate student with a current research project (012:019 Directed Study) or may initiate a small-scale project involving a combination of field, laboratory, and library investigation (012:119 Directed Study). Independent study is encouraged and may result in honors or senior theses that subsequently are published.

**Graduate Programs**

The Department of Geoscience offers the M.S. in geoscience, with or without thesis, and the Ph.D. in geoscience.

All geoscience graduate students are responsible for meeting requirements and deadlines. They should acquaint themselves with the Manual of Rules and Regulations of the Graduate College—particularly sections IX, X, and XII (see the Graduate College section of the Catalog)—and with the University calendar (for deadline dates and so forth).

New graduate students receive a handbook that provides detailed information about graduate degree requirements. The information also is available on the department's web site.

Entering graduate students are required to enroll in 012:207 Geologic Orientation. By the first month of their second semester in residence, they must select an adviser. Also during their second semester in residence, they must consult with faculty members and arrange for an advisory committee.

Throughout their graduate study, all M.S. and Ph.D. students must maintain a g.p.a. of at least 3.00 on all course work required for their degree and on all graduate-level geoscience course work. Students whose g.p.a. drops below 3.00 are placed on academic probation.

Geoscience graduate students are encouraged to present their research at local, regional, national, or international meetings. The department provides partial funding for travel to such meetings.

**Master of Science**

The Master of Science program is designed primarily to prepare students for professional careers in geoscience, or for more advanced studies. It requires a minimum of 30 s.h. of graduate credit. No more than 8 of the 30 s.h. can be earned in research. At least 24 s.h. must be completed in residence at The University of Iowa.

Master's degree students are responsible for obtaining their advisory committee's approval of a suitable program of course work and for satisfactory development of research plans as outlined in a thesis proposal, which should be completed before the end of the second semester of full-time study.

Master's students are required to deliver a half-hour public presentation of the thesis, followed by an oral defense, supporting research, and related topics. They also must take a final examination, for which members of their advisory committee act as examiners.

**Nonthesis Option**

The Master of Science without thesis is designed for students with extensive geological background and experience. Individuals interested in pursuing the nonthesis option must obtain permission from the department chair.

Requirements for the nonthesis option are similar to those for the M.S. with thesis, except that in lieu of the thesis the student must submit a manuscript that his or her thesis committee deems acceptable for submission for publication. The student may choose to submit a previously published manuscript. Nonthesis students also must take a final examination that covers course work and the work done in lieu of the thesis.

**Doctor of Philosophy**

The Ph.D. program is designed primarily to train students to be independent researchers and/or teachers, and to bring students to the forefront of a specialized area of geoscience. It requires a minimum of 72 s.h. of graduate-level credit. At least two semesters beyond the first 24 s.h. earned in graduate work must be spent in full-time study (9 s.h. per semester) in residence at The University of Iowa.

Ph.D. students usually enter the program with established fields of interest and a research adviser already selected. Under exceptional circumstances, a student may be admitted to the Ph.D. program without an established field of interest.

During the first semester of study, students consult with faculty members and their adviser to select course work and to choose a faculty committee for the comprehensive examination. Students should complete most of their course work before taking the comprehensive examination, which consists of both written and oral portions and which must be passed before the end of the second year of doctoral study.

Once candidates have passed the comprehensive examination, they are required to register each semester until they receive the Ph.D. degree.

Candidates who have completed their plan of study may register for 000:002 Doctoral Continuous Registration or 000:003 Doctoral Final Registration.

Doctoral candidates, in consultation with their adviser and other faculty members, prepare a formal dissertation proposal, which must be submitted to the chair of the geoscience department by the beginning of the fifth semester of the candidate's full-time doctoral study and before the bulk of the research is completed. The proposal must receive unanimous approval from the dissertation committee. The written dissertation must be available to the committee at least two weeks before the final examination. All Ph.D. candidates must deliver a one-hour public presentation associated with the dissertation defense.

**Admission**

To be considered for admission to a graduate program in geoscience, applicants must:

- hold a bachelor's degree from a college or university accredited by a regional accrediting association, and
- have a g.p.a. of at least 3.00 (for M.S. applicants) or at least 3.20 (for Ph.D. applicants), or a total score of 1100 or higher on the combined verbal and quantitative portions and 4.5 or higher on the analytical writing portion of the Graduate Record Exam (taken since October 1, 2002).

Students may be admitted on conditional status with a g.p.a. of at least 2.30 (for M.S. applicants) or at least 2.70 (for Ph.D. applicants). Graduates students admitted on conditional status must enroll in at least 8 s.h. of graduate-level course work during each session and must attain regular status at the end of the second session of registration.

The department also admits students who are not candidates for a degree. Such students, called professional improvement students, must meet the same standards as applicants to the master's program.

International applicants whose first language is not English must score 550 or higher on the TOEFL paper-based test or 213 or higher on the computer-based test.
Financial Support

The Department of Geoscience offers merit-based graduate assistantships. All admitted graduate students are eligible for assistantships.

M.S. students may hold an assistantship for two academic years and Ph.D. students for up to five, depending on whether and where they earned an M.S. In order to retain their appointments from semester to semester, students must perform satisfactorily in the assistantship and must continue to make satisfactory progress toward completion of their degree. Students who begin graduate study without an assistantship may become eligible for one as appointments become available.

Students must demonstrate proficiency in English before they can be considered for a teaching assistantship. Teaching assistants are evaluated each semester for teaching proficiency and communication skills, through student evaluations and observation by a supervising instructor. Research assistantships are typically funded by individual faculty grants and vary depending on the nature of the funded project. Duties often involve activities such as sample collection and preparation; collection, analysis, and interpretation of analytical or measurement data; preparation of maps and diagrams; and assistance with fieldwork.

Outstanding students who are entering their first year of graduate school and are enrolled in doctoral programs may apply for Presidential Graduate Fellowships, which provide two academic years and all summers without formal work assignments, freeing students to pursue their own research.

The department also awards a significant number of tuition scholarships based on merit.

Facilities

Resources and equipment available for research in the Department of Geoscience include the following.

Computer facilities: Five networked PC teaching classrooms; a high-end SGI-UNIX teaching classroom with GIS, GMS, remote sensing, image analysis, and computational software packages; a number of multiprocessor SUN and SGI workstations; IBM RISC-6000 workstations; and high-end SGI servers.

Environmental and Hydrogeology Laboratory: Permeameters and tensiometers; pumping and slug/ball test units with transducers and data-loggers; water-quality analysis facility; advanced groundwater modeling and geostatistics software; advanced data logging systems for field research; 3-D sensor arrays (wind and water systems); and facilities for field instrumentation design and construction.

Environmental Instrumentation Laboratories: Storage, testing, and teaching facility focusing on field instrumentation; assembly, housing, and testing of climatic, meteorological, fluvial, water quality and associated environmental instrumentation data recording systems and sampling systems.

Geomorphic Computing Laboratory: High-end SGI visualization systems (SGI onyx reality engine); high-end digitizing remote sensing and GIS systems; and high-end SGI and SUN multiprocessor workstations.

Geoscience Library: A branch of the University of Iowa Libraries that serves the University community, the Iowa Geological Survey Bureau, and the public; more than 55,000 volumes to support research, study, and teaching, including publications of state, federal, and international geological surveys and field trip guidebooks; more than 73,000 geological maps, including the newest versions of U.S. topographic quadrangle maps.

Morphometric laboratories: Reflex microscope for capturing 3-D data; high-resolution digital cameras and microscopes for 2-D image analysis; and laboratories for micro- and macro-fossil preparation.

Paleontological Repository: More than a million specimens, including some 25,000 type and referred specimens, with 6,000-7,000 primary types; invertebrate, vertebrate, and plant fossils of all geologic ages, and more than 90 percent Paleozoic invertebrates; the fifth-largest university collection in North America (CONARIP 1977); editorial office of the Journal of Paleontology.

Petrology laboratories: Clean laboratory for preparation of samples for elemental and isotopic analysis; Alpha-Spectrometry laboratory; Image analysis; heating-freezing stage; Petrographic microscopes; Photo microscopy; wet-chemistry facilities; rock preparation and mineral separation; and UNIX, Windows, and Mac workstations for data analysis and modeling.

Quaternary Materials Laboratory: Pipette grain-size analysis apparatus; Chtitchick apparatus; Sedigraph 5100 X-ray particle-size analyzer; Wet-chemistry facilities; a Flotech flotation system; and a Giddings drill rig.

Sedimentary Geology Laboratories: Water ion chromatograph; Image analysis; Sedigraph X-ray particle-size analyzer; and a soil/sediment characterization laboratory.

Stable Isotope Laboratory: Finngan MAT 252 IRMS; Kiel III carbonate reaction device; H-device; Gasbench II; Isocarp automated microsampling; and a Costech CHNS Analyzer.

Thin-section and Rock Preparation Laboratory: Diamond saws and specialized grinding equipment used to prepare ultrathin slices (30 microns thick) of rocks and fossils for microscopic and electron microprobe analysis.

Cooperative Activities

The department does collaborative work with the Iowa Geological Survey Bureau and the Office of the State Archaeologist of Iowa. Geoscience students sometimes work on projects for the survey.

The Departments of Geoscience, Geography, Anthropology, Chemistry, Civil and Environmental Engineering, and Biological Sciences cooperate in sharing services, expertise, joint instruction, and equipment. The geoscience department is an important participant in the Iowa Quaternary Studies group, an interdisciplinary program that promotes projects combining work in geology, geography, biological sciences, anthropology, and statistics. Course work, degree programs, and facilities are shared among departments. The geoscience department and its faculty also support and actively participate in the Interdisciplinary Environmental Sciences Program, which offers a Bachelor of Science degree.

Field Trips

Field trips are integral parts of several courses in geoscience, with frequent weekend general-interest events. The geology of the Iowa City region is characterized by Quaternary glacial sediments on a largely Paleozoic sedimentary section a few hundred meters thick, overlaying a Precambrian crystalline basement. Marine and terrestrial fossil assemblages, extensive reefs, and unique geode sites are located within a few hours' drive. Numerous Pleistocene glaciations are represented in Iowa, and field studies of landforms, exposures, and cores continue to yield information on sedimentology, stratigraphy, soil formation, paleopedology, and fossil biotas from both glacial and interglacial deposits.

Spring break provides time for longer trips, which are open to all geoscience students. In recent years, students have traveled to Hawaii, Puerto Rico, Death Valley, the Florida Keys, the southern Appalachians, Arizona, New Mexico, Texas, and the Ozarks. Advanced classes have visited Colorado, Kansas, Oklahoma, Wisconsin, California, and Ontario, Canada.

Courses

Not all courses are offered every year.

Primarily for Undergraduates

012:001 Lectures in Earth History and Resources 2 s.h.

012:003 Earth History and Resources 4 s.h.

012:004 Evolution and the History of Life 4 s.h.

012:005 Introduction to Geology 4 s.h.

012:006 Lectures in Evolution and the History of Life 3 s.h.

012:007 Age of Dinosaurs 4 s.h.
context, including other animals and plants that lived alongside dinosaurs; the structure of rocks and rocks; the life of humans and the environment; the impact of ecosystems, climate, natural processes, resources, alternative options, including sustainable waste management, energy; land reform; GE: natural sciences. Same as 159:008.

012:009 Introduction to Environmental Sciences Laboratory 1 s.h.
Laboratory component of 012:08. Open only to environmental sciences and geoscience majors who have taken 012:041, 012:052 for 3 s.h. or equivalent course work without a laboratory component. GE: natural sciences. Prerequisite: 012:08 or 159:008 or consent of instructor. Same as 159:009.

012:100 Honors Thesis in Geoscience arr.
Independent research resulting in an honors thesis. Prerequisite: honors student.

012:011 Senior Thesis in Geoscience arr.
Independent research resulting in a senior thesis. Prerequisite: senior standing.

012:1017 Geology of the U.S. National Parks 2 s.h.
Geologic features, geologic history, important biological and archaeological differences between, with emphasis on features that caused certain areas to be included in national park system. Offered spring semester. Prerequisite: introductory geology course or consent of instructor.

012:102 Earth Surface Processes 3 s.h.
Basic concepts and processes in environmental sciences that shape the earth’s surface; emphasis on erosion, transport, deposition by land mass movement (e.g., landslides, earth flow), fluid agents (wind, water, ice) and mass movement processes. Prerequisite: 012:05 or 012:08 or 044:03 or 159:008 or consent of instructor. Same as 159:102.

012:103 Physical Geography 2-3 s.h.
Processes that have generated and continue to alter our physical environment; composition and structure of rocks as they are related to the earth’s atomic to planetary level, relative to resource requirements; weathering, erosion, rock deformation, volcanism, mountain building, earthquakes, geomagnetism, continental drift.

012:014 Climatology 3 s.h.
Same as 044:101.

012:108 Introduction to Oceanography 2 s.h.
Descriptive, chemical, physical, biological, geologic aspects of oceans; impact on weather, climate, shorelines, food supply, other aspects of civilization. Offered spring semesters. Recommended: knowledge of basic chemistry, biology, physics, earth science.

012:110 Introduction to Applied Remote Sensing 4 s.h.
Remote sensing of the earth’s surface from aircraft, satellites; aerial photograph interpretation, remote sensing systems, methods, data analysis using electromagnetic spectrum and digital processing techniques, including visible, infrared, microwave radiation; remote sensing applied to geological and environmental problems. Prerequisite: college-level physics or geophysical or equivalent. Same as 159:110.

012:113 Summer Field Course 6 s.h.
Description and mapping of rock units and geologic structures in the Wasatch and Uinta Mountains, Park City, Utah. Offered during summer sessions. Prerequisites: 012:041, 012:052, 012:092, and 012:093.

012:114 Energy and the Environment 3 s.h.
Scientific concepts related to significant energy sources of the 21st century, environmental impacts, positive and negative, of each energy source as well as geologic and environmental distributions and applications. GE: natural sciences. Prerequisite: college-level earth science course or graduate standing or consent of instructor.

012:116 Field Trip 2 s.h.
Field trip to an area of geologic interest such as carbonate area of Florida, Grand Canyon (Arizona), Rio Grande Rift (New Mexico), Death Valley (California, Nevada), Appalachian Mountains (Virginia); preceded by weekly discussions of destination’s geology. Offered spring semester. Prerequisite: consent of instructor.

012:119 Directed Study arr.
Special topics, independent research. Prerequisite: consent of instructor.

012:121 Collection Care and Management 3 s.h.
Same as 024:120.

012:121 Principles of Paleontology 3 s.h.
Patterns of evolution in fossil record, species and analysis of their evolutionary relationships; paleoecology, paleocommunity evolution; evolutionary radiation and mass extinctions; large-scale relationships between biodiversity and climate change. Offered fall semesters.

012:122 Evolution of the Vertebrates 3 s.h.
Evolutionary history of vertebrates revealed by fossils and information from living animals; biogeographic, stratigraphic, paleoecological aspects of selected groups, especially mammals and dinosaurs; transitions from aquatic to terrestrial life; origins of flight, major events in vertebrate history (including mass extinctions and explosive radiations). Prerequisite: introductory course in geobiology or paleontology.

012:126 Wetlands: Function, Geography, and Management 3 s.h.
Same as 044:126.

012:130 Sedimentary Geology 3 s.h.
Basic concepts of sedimentology, stratigraphy, depositional environments, sedimentary petrology, hands-on analyses of sediments and sedimentary rocks, including thin section petrology; lecture/laboratory. Offered spring semester. Corequisite: 012:052.

012:136 Soil Genesis and Geomorphology 3 s.h.
Principles of soil genesis; soil classification; influence of geologic materials, climate, biota, geomorphic processes on soil development; lands, weekend field trip. Prerequisites: college-level earth science and chemistry. Same as 044:186.

012:138 Fluvial Geomorphology 3 s.h.
Hydrologic principles, stream channel processes, and fluvial geomorphology within drainage basin systems; spatial and temporal variations in water distribution, analysis of hydrologic data, flow mechanisms, sediment processes, geomorphic processes, hydrographic construction, modeling. Prerequisite: 012:102 or another 100-level geology or hydraulics course; or consent of instructor. Same as 053:128.

012:139 Integrated Watershed Analysis 3 s.h.
Integration of existing knowledge of physical, hydrological, and environmental processes with management issues and challenges in water resources and environmental management; aspects of water quantity and quality and water use and treatment; basin management issues related to forestry, agriculture, urbanization, floods, droughts.

012:140 Natural Hazards 3 s.h.
Causes, effects, occurrence patterns, predictabilities, and mitigation efforts relevant to geological and other natural hazards; background and case studies. GE: natural sciences. Prerequisites: 012:003 or 012:005 or 012:008 or 044:03 or 159:008.

012:141 Analytical Methods 2 s.h.
Theory and practice of analyzing the chemical, isotopic, and mineralogical compositions of rocks, organic materials, and waters; use of modern analytical instruments. Offered spring semesters. Prerequisites: 004:007, 012:052, and 005:012 or 029:082.

012:144 Phylogeneics and Biodiversity 3 s.h.
Methods available for reconstructing evolutionary history and measuring biodiversity including distance, parsimony, likelihood, and taxic approaches; applications to molecular and morphological systems, systematic and biogeography, study of diversity through time. Prerequisites: 012:004 or 012:006 or 012:121, or 002:010 and 002:011, or consent of instructor.

012:149 Elements of Geochemy 3 s.h.
Introduction to application of chemical principles to solution of geologic problems concerning earth and environmental processes; origin of elements, chemical differentiation of Earth and the solar system, geochemistry, application of radiogenic and stable isotopes, chemical equilibrium, elementary thermodynamics and kinetics, carbonate and silicate stability relationships, chemical weathering, adsorption, trace element behavior, oxidation-reduction reactions, characterization of surface and ground waters, and ocean chemistry. Prerequisites: 004:008 or 004:014, and 012:005.

012:152 Isotope Geochemistry 3 s.h.
Radiogenic and stable isotope systems, applications to geology, cosmochemistry, and environmental problems. Prerequisite: 004:004 or 004:014, or consent of instructor.

012:153 Geocomputing 1-3 s.h.
Computer applications in geoscience, visualization, data management, interactive modeling, computer graphics. Same as 159:153.

012:154 Advanced Geocomputing 2 s.h.
Design of programs with applications in geology, emphasis on interactive modeling, data visualization. Prerequisite: geology major or graduate standing or consent of instructor.

012:155 Igneous and Metamorphic Petrology 3 s.h.
Nature and origin of volcanic, plutonic, and metamorphic rocks. Offered spring semester. Prerequisite: 012:052 or consent of instructor.

012:156 Scanning Electron Microscopy and X-ray Microanalysis 3 s.h.
Theory, operation, application of scanning electron microscopy and X-ray microanalysis for advanced students, staff, investigators. Same as 052:156, 060:156.

012:158 Biogeochemical Cycles and Modeling 3 s.h.
Fundamental processes and reactions that control elemental distribution on the earth’s surface; major biogeochemical cycles from global to microscopic scales, and their modeling at different time scales. Prerequisite: consent of instructor.

012:161 Stratigraphy 3 s.h.
Genesis of sedimentary rocks, geologic time, stratigraphic nomenclature, biostratigraphic and physical correlation methods, mass extinctions, seismic and sequence stratigraphy, basin analysis and modeling, stratigraphic field methods. Offered fall semesters. Prerequisite: 012:052 or consent of instructor.

012:166 Hydrogeology 3 s.h.
Groundwater hydrology, water resources, regional aquifer building, earthquakes; geomagnetism, continental drift.

012:170 Paleogeography 3 s.h.
Evolutionary history of terrestrial and marine ecosystems; ecological processes from population to ecosystem levels; community assembly, trophic levels, networks, biodiversity dynamics; practical aspects of paleocological data collection.
012:172 Glacial and Pleistocene Geology 3 s.h.
Interactions among glaciers, ocean, and climate; glacier dynamics; evolution of Earth’s Pleistocene and landscapes; Pleistocene stratigraphy. Prerequisite: physical geology, physical geography, or archaeology.

012:173 Quaternary Environments 3 s.h.
Archaeological, botanical, zoological, physical, chemical means of reconstructing ice-age environments; techniques; results; interdisciplinary and field trips. Prerequisite: consent of instructor. Same as 044:183.

012:178 Applied Geostatistics 3 s.h.
Applications of geostatistical methods to geology, geography, hydrology, environmental sciences, and engineering; variograms; Kriging; analysis of spatially varied data with varied computer software in participants’ specialties. Same as 044:188.

012:179 Engineering Geology 3 s.h.
Basic concepts in geology focusing on rock and soil, including material properties, spatial variability in properties, geological processes, external factors such as stress, evaluation of engineering design adequacy; site investigation and characterization techniques used to define and characterize geotechnical and hydrological properties of geological materials; case studies to illustrate the importance of geology on engineering design. Recommended: 012:059. Same as 053:105.

012:180 Principles of Geophysics 3 s.h.
What we know about the physics of the Earth and how we know it: geophysical measurement and data processing methods, earthquakes, seismology, gravity and isotropy, magnetic fields and paleomagnetism, heat flow, internal structure, radiactivity and age dating, geophysical evidence for plate tectonics. Prerequisite: introductory geology or physics.

012:181 Exploration Geophysics 3 s.h.
Techniques used in exploration for oil and gas, minerals, groundwater, and subsurface structure; gravity, magnetic, seismic, electrical, and electromagnetic methods; offered spring semesters. Prerequisite: 012:180; or college geology, physics, and mathematics; or consent of instructor.

012:182 Ore Deposits 3 s.h.
Introduction to geology of ore deposits and the processes that form them; characteristics and global distribution of base and precious metal deposits; source, mode of transport, and depositional mechanisms of ore constituents; ore microscopy; fluid inclusions; exploration methods; case studies of individual deposits and districts; overnight field trip to an active mining district. Prerequisite: 012:052.

012:184 Groundwater Modeling 3 s.h.
Groundwater flow and contaminant transport in modeling; numerical methods; applications of groundwater modeling to water supply, groundwater resources evaluation, remediation design using software: GAMS (MODFLOW, MODPATH, and MT3D). Prerequisites: 012:166 or 053:103, and 22M:026. Same as 053:104.

012:185 Approaches to Geoarchaeology 3 s.h.
Geoarchaeology as multidisciplinary exploratory framework for human paleocology and natural processes that create the archaeological record, approaches to reconstructing landscapes of the past as a context for archaeological deposits. Prerequisite: 012:136, 012:172, 113:160, 113:161, 113:164, or consent of instructor. Same as 113:189.

012:186 Contaminant Hydrogeology 3 s.h.
Physical and chemical processes that govern mass transport, transformations, retardation, and attenuation of contaminants in groundwater; sampling of monitoring, and groundwater remediation techniques; analytical and numerical solutions of equations using spreadsheets, computers. Same as 053:186.

012:187 Vadose Zone Hydrology 3 s.h.
Introduction to vadose zone hydrology; development and application of equations describing flow and transport in vadose zone, including multiphase, field and laboratory methods for vadose zone characterization; vadose zone processes that cause groundwater contamination; case studies to illustrate vadose zone hydrology’s importance in engineering design, groundwater contamination. Prerequisite: 012:166 or equivalent. Same as 053:181.

012:188 Environmental Seminar 1 s.h.
Lectures on the environment by faculty members from the University, other public and private institutions, researchers and professionals from state and federal agencies.

012:190 Undergraduate Geoscience Colloquium 1-2 s.h.
Presentation, discussion of undergraduate research projects. Prerequisite: consent of department chair.

012:191 Geotechnics 3 s.h.
Dynamic processes responsible for crustal genesis, plate movements, mountain building; plate boundary zones; sedimentologic, structural, petrologic, geophysical characteristics of major tectonic settings; multidisciplinary approach; week-long field trip. Prerequisite: 012:052 or consent of instructor.

012:194 Environmental Field Methods 3 s.h.
Integrated, comprehensive, field-based overview of environmental sampling concepts and methods for geoscience and hydrogeoscience. Three weeks. Same as 159:194.

012:195 Field Methods: Environmental Processes 2-4 s.h.
Problem definition and research design in a field setting; sampling theory and procedures; collection of primary data using digital sensor and recording methods; data analysis and interpretation of processes in geomorphic, climatic, environmental research. Prerequisite: 12 s.h. of geoscience, environmental science, engineering, or equivalent; or consent of instructor. Same as 053:180.

012:196 Advanced Environmental Field Methods 3 s.h.
Field instrumentation design, deployment, experience designing a field project, extended field trip to California. Prerequisite: 12 s.h. of geoscience, environmental science, engineering, or equivalent.

012:201 Geoscience Seminar Series 0 s.h.
Scholarly work and research in geoscience. Repeatable.

012:207 Geologic Orientation 1 s.h.
Department degree requirements, programs; field survey of local geology; tips for TAs; introduction to specialized facilities; for new graduate students.

012:209 Research: Geoscience 3-6 s.h.
Independent research related to theses or dissertations in geoscience. Repeatable.

012:220 Geochronology 3 s.h.
Nature and origin of metamorphic rocks examined through thermodynamics, experimental data, geologic observations. Prerequisite: 012:052 or consent of instructor.

012:221 Tectonics and Petrology Seminar 1-2 s.h.
Topics in tectonics, structural geology, petrology. Repeatable. Prerequisite: consent of instructor.

012:293 Advanced Structural Geology 3 s.h.
Kinematic and dynamic analysis of deformed rocks; microstructural analysis; strain analysis, field investigations of highly deformed rocks. Repeatable. Prerequisite: 012:052 or consent of instructor.

012:310 Research: Geoscience 3-6 s.h.
Independent research related to theses or dissertations in geoscience. Repeatable.

Chair: James P. Purack
Professors: Judith P. Akin, Wolfgang Ertl
Professors emeriti: Edward Dvoretzky, James P. Sardtrock, Ingeborg H. Solbrig, John A.A. ter Haar
Associate professors: Glenn Ehrlwine, Sarah M. Fagan, Waltraud Maierhofer, Astrid Oesmann, James P. Purack
Associate professors emeriti: Ford B. Parkes, Richard M. Knox
Assistant professor: Bruce Spencer

Undergraduate Program

The following course sequences, or their equivalents, are required for students who begin a major in German with no previous experience in the German language.

BASIC PROGRAM

013:010 German 1 4 s.h.
013:012 German 2 4 s.h.
013:021 Intermediate German I 4 s.h.
013:022 Intermediate German II 4 s.h.

The basic program also may be satisfied by various combinations of 013:013, 013:014, and 013:025. See the German department director of undergraduate studies for details.

Students majoring in German choose one of three major tracks: the comprehensive track, the humanities track, or the applied German track. Students who plan to complete the undergraduate teaching major in German in conjunction with the College of Education (see the College of Education section of the Catalog) are encouraged to choose the comprehensive track.

At least five upper-level German courses must be taken at The University of Iowa. Students who have upper-level course work from other
institutions should consult with the German department director of undergraduate studies to determine how much work remains for completion of the major.

German majors, both graduate and undergraduate, are urged to supplement their degree programs with relevant courses in areas such as German history, philosophy, and business.

**HUMANITIES TRACK**
The humanities track enables students to concentrate on German language, literature, and culture, both past and present. It is recommended for students who want to explore the world of German ideas and their influence through the ages.

013:101 Introduction to German Literature 3 s.h.
013:103-013:104 Composition and Conversation I-II 6 s.h.
013:105 German Cultural History 3 s.h.
013:110 Eighteenth-Century German Literature 3 s.h.
013:111 Nineteenth-Century German Literature 3 s.h.
013:112 Twentieth-Century German Literature 3 s.h.
013:116 Advanced Composition and Conversation 3 s.h.
013:198 Undergraduate Special Topics 3 s.h.

An elective from the 100-level courses offered by the department, excluding courses in which works in German are taught in English translation 3 s.h.

013:101 is prerequisite for all other literature courses.

**APPLIED GERMAN TRACK**
The applied track gives students practical skills and proficiency in German for business and government. It is especially useful when combined with a business-oriented curriculum.

The College of Liberal Arts and Sciences and the Tippie College of Business offer a joint program leading to an International Business Certificate. For details, see “International Business” in the Catalog.

All of these:
013:103-013:104 Composition and Conversation I-II 6 s.h.
013:107 Introduction to German Linguistics 3 s.h.
013:115 Contemporary German Civilization 3 s.h.
013:116 Advanced Composition and Conversation 3 s.h.
013:198 Undergraduate Special Topics 3 s.h.

Two of these:
013:108 The German Media 3 s.h.
013:114 Business German 3 s.h.
013:117 Current Issues 3 s.h.

One of these:
013:101 Introduction to German Literature 3 s.h.
013:105 German Cultural History 3 s.h.

An elective from the 100-level courses offered by the department, excluding courses in which works in German are taught in English translation 3 s.h.

**COMPREHENSIVE TRACK**
The comprehensive track provides a foundation in both literature and linguistics as well as a sound basis in speaking, reading, oral comprehension, and writing skills in German. It is particularly recommended for students seeking teaching licensure and for those intending to pursue graduate studies in German.

All of these:
013:101 Introduction to German Literature 3 s.h.
013:103 Composition and Conversation I 3 s.h.
013:104 Composition and Conversation II 3 s.h.
013:107 Introduction to German Linguistics 3 s.h.
013:116 Advanced Composition and Conversation 3 s.h.

One of these:
013:105 German Cultural History 3 s.h.
013:115 Contemporary German Civilization 3 s.h.

One of these:
013:110 Eighteenth-Century German Literature 3 s.h.
013:111 Nineteenth-Century German Literature 3 s.h.
013:112 Twentieth-Century German Literature 3 s.h.

Three electives from the 100-level courses offered by the department, selected in consultation with the undergraduate adviser, and excluding courses in which works in German are taught in English translation 9 s.h.

**Teaching Licensure in German**

German majors interested in licensure to teach in elementary and/or secondary schools must successfully complete the requirements for a major in German and must be admitted to the College of Education’s foreign language teacher education program. Several courses in the College of Education also are required, as is one semester of student teaching in the senior year.

Students who plan to use a German minor to teach at the elementary and/or secondary level must contact the College of Education concerning requirements.

**Four-Year Graduation Plan**
The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s Four-Year Graduation Plan.

**Before the third semester begins:** language competency equal to first-year German and at least one-quarter of the semester hours required for graduation

**Before the fifth semester begins:** language competency equal to second-year German and at least one-half of the semester hours required for graduation

**Before the seventh semester begins:** four courses in the major and at least three-quarters of the semester hours required for graduation (013:107 through 013:111, 013:114 and 013:115 are offered in alternate years, so they should be taken as soon as they appear in the course rotation)

**Before the eighth semester:** two to three additional courses in the major

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

**Honors**

Honors in German is open to exceptional students who are members of the University Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information). To participate in honors in German, students must have completed three years of college-level German, or the equivalent, with a g.p.a. of at least 3.50 in upper-division German courses.

Participating students register for the following courses.

013:190 Honors Program in German 3 s.h.
013:191 Honors Research and Thesis 3 s.h.

Honors students are expected to engage in readings and discussions in German literature and culture and to write essays in German and English. Students meet with their faculty director of studies on a regular basis.

The program concludes with presentation of an honors thesis to a faculty committee of at least three members.

**Minor**

A minor in German requires 15 s.h. of course work in college-level German with a g.p.a. of at least 2.00; 12 of the 15 s.h. must be in advanced courses (numbered 100 and above) at The University of Iowa, although students may count 6 s.h. earned in study abroad at a university in a German-speaking country toward the minor. All courses numbered 100 and above count toward the minor except courses in which works in German are taught in English translation.

**Language for Nonmajors**

The department offers a number of opportunities for students who wish to study German. Students who have had experience with the language should take the German Foreign Language Placement Test, offered during summer orientation programs and monthly by Evaluation and Examination Service. The test helps determine the level at which a student should begin German language study at The University of Iowa.

Students with no background in German should begin their study with 013:011 Elementary German I. Students with experience in language learning may prefer to enroll in 013:013 Intensive Elementary German, an accelerated
introduction that offers the equivalent of a full year of study in one semester.

Students who wish to use German to complete the foreign language component of the General Education Program can choose from a number of course sequences. All of the following satisfy the requirement. Students are encouraged to talk with departmental advisers about the various sequences.

013:013, 013:021, 013:022
013:014, 013:021, 013:022
013:011, 013:012, 013:025
013:013, 013:025
013:014, 013:025

Graduate Programs

Master of Arts

The department offers the Master of Arts both with and without thesis. The M.A. without thesis is considered a terminal degree.

Students must complete a minimum of 33 s.h. of qualifying course work to complete the M.A. M.A. students may elect a concentration in either Germanic linguistics (including second language acquisition) or German literature. Those who have not completed major courses or their equivalents in the department’s undergraduate program must take those courses along with the courses required for the M.A. Some candidates may qualify for graduate credit for such work.

With approval from the director of graduate studies, students may take some of the required 33 s.h. outside the department in related subjects, such as philosophy, history, linguistics, or other languages.

Students who elect to pursue the M.A. with thesis must submit a prospectus within a month after the M.A. examination, and they must complete the thesis no later than eight months after they take the M.A. examination.

Usually students may receive 2 s.h. of credit for satisfactory completion of the thesis. The semester hours are in addition to the 33 s.h. required for the M.A. The thesis topic may be either linguistic or literary and is subject to approval by the faculty.

Candidates must present an oral defense of the thesis. If the thesis is deemed acceptable, the faculty considers the candidate’s application for formal admission to the Ph.D. program.

Doctor of Philosophy

The Ph.D. is awarded upon satisfactory completion of a minimum of 72 s.h. of graduate credit and fulfillment of other requirements of the Department of German and the Graduate College (see the Graduate College section of the Catalog). Students may elect a concentration in either Germanic linguistics (including second language acquisition) or German literature.

Credit received toward the M.A. usually is applied to the Ph.D. Students may earn up to 12 s.h. of the required 72 s.h. for satisfactory completion of the Ph.D. dissertation.

Graduate courses in related subjects outside the department may be counted toward the degree with approval from the director of graduate studies.

Graduate Degree Language Tools

Master of Arts

Before taking the M.A. exam, candidates must demonstrate a reading knowledge of a foreign language other than German, at a level equivalent to two years of college study or four years of high school study.

Competence may be demonstrated either by submitting proof of having taken the required course work with a g.p.a. of 3.00 or higher or by passing an exam at the fourth-semester college level as determined by the appropriate language department.

Doctor of Philosophy

Candidates must demonstrate a reading knowledge of two languages determined by the adviser to be pertinent to the candidate’s research interests.

Competence may be demonstrated by the methods described under “Master of Arts.”

Financial Support

Teaching assistantships, research assistantships, and partial tuition scholarships are available for qualified graduate students. The department awards the Wilson and the Funke prizes to students of distinction.

Study Abroad

The Department of German participates in an academic year abroad program for undergraduates at the Albert-Ludwigs Universitat in Freiburg, Germany. The Freiburg program is offered by a consortium made up of Michigan State University, The University of Iowa, The University of Michigan, and The University of Wisconsin-Madison.

Students arrive during the first week of September and participate in a four-week intensive language program. Following this, students take a blend of special program classes and regular German university courses. Organized field trips are designed to give students a broader perspective of German culture. Vacation periods permit extensive travel throughout Europe, and students are encouraged to use weekends for shorter trips in the region.

To be eligible for application to this program, students must have achieved at least junior standing by the beginning of the program, have completed at least the first four semesters of college German or the equivalent, and be a student in good academic standing at a U.S. college or university.

Students earn resident credit in all courses successfully completed in the program. They may count up to 21 s.h. earned at Freiburg toward the major in German. Credit also is applicable toward the minor in German. Students in other majors should consult with their adviser or the undergraduate director in their department.

Contact the Department of German or the Office for Study Abroad for more information.

Special Facilities

Students have the opportunity to improve their comprehension and command of German by working with recorded materials in the Language Media Center. They also may benefit from the computer-assisted instruction program.

An extensive collection of works and periodicals in the University Libraries facilitates research in all major areas of German literature and Germanic linguistics and at all levels of study.

The International Crossroads Community is an on-campus housing option for undergraduate and graduate students.

Courses

Primarily for Undergraduates

013:011 Elementary German I 4 s.h.
Understanding and speaking “everyday German”; reading and writing skills; acquaintance with the German-speaking world through discussion, readings, videos. GE: foreign language.

013:012 Elementary German II 4 s.h.
Continuation of 013:011. GE: foreign language. Prerequisite: 013:011 or equivalent.

013:013 Intensive Elementary German 6 s.h.
A year in one semester. GE: foreign language. Prerequisite: undergraduate standing.

013:014 First-Year German Review 5 s.h.
Accelerated course in preparation for third-semester German. GE: foreign language. Prerequisite: two or more years of high-school German.

013:021 Intermediate German I 4 s.h.
Proficiency in spoken and written German; German-speaking cultures of central Europe; their historical background; emphasis on refinement of reading skills. GE: foreign language. Prerequisite: 013:012 or 013:013 or 013:014 or equivalent.

013:022 Intermediate German II 4 s.h.
Continuation of 013:021. GE: foreign language. Prerequisite: 013:021 or equivalent.

013:025 Intensive Intermediate German 6 s.h.
A year in one semester. GE: foreign language. Prerequisites: undergraduate standing, and 013:012 or 013:013 or 013:014 or equivalent.

For Undergraduate and Graduate Students

013:100 Individual German arr.
Prerequisite: German major or minor or consent of instructor.

013:101 Introduction to German Literature 3 s.h.
Literary works from various genres. Taught in German. Prerequisite: 013:022 or equivalent.

013:103 Composition and Conversation I 3 s.h.
Active command of German in reading, speaking, writing. Taught in German. Prerequisite: 013:022 or equivalent.

013:104 Composition and Conversation II 3 s.h.
Taught in German. Prerequisite: 013:103 or equivalent.

013:105 German Cultural History 3 s.h.
Emphasis on development of arts, philosophy, literature. Taught in German. GE: foreign civilization and culture. Prerequisite: 013:101 or 013:103 or equivalent.

013:107 Introduction to German Linguistics 3 s.h.
Phonology, morphology, syntax, semantics, historical
development. Taught in German. Offered spring semesters of even years. Prerequisite: 013:101 or 013:103 or equivalent.

013:108 The German Media
3 s.h.
Reading and listening skills; German culture as portrayed by print media, the web, television. Taught in German. Offered fall semesters of odd years. Prerequisite: 013:101 or 013:103 or equivalent.

013:110 Eighteenth-Century German Literature
3 s.h.
Representative works from various genres in their literary, historical, social background. Taught in German. Offered fall semesters of even years. Prerequisite: 013:101 or equivalent.

013:111 Nineteenth-Century German Literature
3 s.h.
Representative works from various genres in their literary, historical, social background. Taught in German. Offered fall semesters of odd years. Prerequisite: 013:101 or equivalent.

013:112 Twentieth-Century German Literature
3 s.h.
Representative works from various genres in their literary, historical, social background. Taught in German. Prerequisite: 013:101 or equivalent.

013:114 Business German
3 s.h.
World of German business, role of German-speaking countries in world trade; emphasis on German business protocol, correspondence. Taught in German. Offered fall semesters of even years. Prerequisite: 013:101 or 013:103 or equivalent.

013:115 Contemporary German Civilization
3 s.h.
Government and political structure, economy, mass media, education, social and cultural life of Germany, Austria, Switzerland from the end of World War II to present. Taught in German. Offered spring semesters of odd years. GE: foreign civilization and culture. Prerequisites: 013:101 or 013:103 or equivalent.

013:116 Advanced Composition and Conversation
3 s.h.
Speaking and writing. Taught in German. Prerequisite: 013:101 or 013:104, or equivalents; and undergraduate standing in German or consent of instructor.

013:117 Current Issues
3 s.h.
Current issues in German-speaking countries; topics such as postunification politics, environmental concerns, xenophobia, the cultural scene; readings from contemporary literature and/ or media, with focus on expanding students' cultural and linguistic fluency. Taught in German. Prerequisite: 013:101 or 013:103 or equivalent.

013:120 Internship Abroad
arr.
Work experience related to student's major field of study; must receive significant use of German language in a German-speaking country; must be arranged in collaboration with University of Iowa Office of Cooperative Education.

013:190 Honors Program in German
3 s.h.
Individual work in literature, linguistics, and culture. Prerequisites: three years of college-level German or equivalent, and a g.p.a. of at least 3.50 in German.

013:191 Honors Research and Thesis
3 s.h.
Prerequisites: honors standing, 013:190, and consent of instructor.

013:198 Undergraduate Special Topics
3 s.h.
Taught in German. Prerequisite: two 100-level courses taught in German at The University of Iowa or consent of instructor.

German for Graduate Nonmajors

013:113 Intensive Elementary German
4 s.h.
Prerequisite: graduate standing.

013:125 Intensive Intermediate German
4 s.h.
Prerequisites: graduate standing, and 013:113 or equivalent.

013:128 German Reading for Graduate Students
4 s.h.
Grammar review, vocabulary building, extensive reading of sophisticated texts. Offered spring semesters. Prerequisite: graduate standing outside German, and 013:012 or 013:014 or 013:111 or equivalent.

For Graduate Students

013:200 Advanced Studies
arr.
Special problems in German literature and linguistics. Repeatable. Prerequisite: graduate standing in German.

013:220 The German Novel
3 s.h.
Representative works of German fiction from 17th century to present; historical development of the genre, importance of each work for its period.

013:221 Principles of Teaching and Learning Foreign Languages
3 s.h.
Theoretical foundations of teaching and learning a foreign language; emphasis on practical applications of theories to a language classroom. Same as 009:234, 039:234, 041:234.

013:224 The German Drama
Repeatable.

013:227 German Novelle
3 s.h.

013:241 History of the German Language
Same as 103:231.

013:243 Middle High German
Emphasis on language. Same as 103:252.

013:253 Multimedia and Second Language Acquisition
3 s.h.
Same as 009:238, 035:212, 164:211.

013:255 Semantics
3 s.h.
Meaning in natural language, with focus on German; lexical semantics (sense relations, semantic fields, componential analysis), modality, temporal and spatial deixis, aspect.

013:256 Modern German Syntax
Analysis of syntax within a generative framework.

013:257 Morphology
Word structure and formation in Modern German; inflection, derivation, compounding.

013:258 Modern German Phonetics and Phonology
The sounds and sound system of Modern Standard German.

013:260 Crossing Borders Pre-seminar

013:262 Crossing Borders Seminar

013:264 Crossing Borders Seminar: Introductory

013:271 German Literature of the Baroque
3 s.h.

013:283 The Age of Goethe
3 s.h.
Sturm and Stress (Goethe, Schiller, Klinger, Lessing) and the Weimar classicism (1796-1805) of Goethe and Schiller, interdependence of movements and their theoretical basis (Herder, Westphal) vis-a-vis representative works.

013:295 German Literature from Naturalism to Expressionism
3 s.h.

013:298 Special Topics in German Literature
Repeatable. Prerequisite: graduate standing in German.

013:299 Special Topics in German Linguistics
Repeatable. Same as 103:232, 164:299.

013:300 Master's Thesis
arr.

013:350 Pre-Comprehensive Registration
0 s.h.

013:371 Seminar in Early German Literature
Repeatable.

013:396 Seminar in German Literature of the Twentieth Century
Repeatable.

013:400 Ph.D. Dissertation
Repeatable.

German in Translation

13E:017 German Heroic and Erotic Literature: Middle Ages
Interaction of Christian and Germanic culture in heroic epic, Arthurian romance, courtly and Gothician love poetry; Song of the Nibelungs, Parzival, and Tristan (in English translation). Taught in English. GE: foreign civilization and culture or humanities. Prerequisite: completion of rhetoric requirement.

13E:029 First-Year Seminar
1-2 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor, may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Taught in English. Prerequisite: first- or second-semester standing.

13E:033 German Heritage and Image in America
3 s.h.
Role of German language and culture in America, from the point of view of persons whose heritage can be traced to a German-speaking country; student experiences and heritages juxtaposed with oral interviews, historical documents, news reports, novels, and films that shape various and competing images of Germany. Taught in English.

13E:060 Pact with the Devil
3 s.h.
Works from German literature and culture whose theme is the pact with the devil—a metaphor for humankind’s desire to surpass the limits of knowledge and power; the Faust legend, Goethe’s Faust, Carl Maria von Weber’s opera Freischütz (Shapeshooter). Taught in English.

13E:068 German Folk and Fairy Tales
3 s.h.
German fairy tales; cultural topics such as identity, life goals and decisions, class, gender, religion, reality, imagination. Taught in English.

13E:118 The Third Reich and Literature
3 s.h.
Naive literature, literature of the Holocaust and the Opposition, exile literature, in English translation. Taught in English. GE: foreign civilization and culture or humanities.

13E:119 German Film
3 s.h.
Overview 1925-1987, examples of avant-garde films of the Weimar Republic, propaganda filmmaking from the Third Reich, filmmaking traditions of the GDR and FRG. Taught in English. GE: foreign civilization and culture or humanities.


college liberal arts and sciences • departments and majors
Undergraduate Program

Bachelor of Arts

Students majoring in health and sport studies choose one of two tracks: health promotion or sport studies. Students may enter the sport studies track at any time; there is a selective admission process for the health promotion track.

HSS Foundation Courses

All health and sport studies majors should complete the following three foundation courses as early as possible.

028:074 Inequality in Sport 3 s.h.
028:075 Health in Everyday Life 3 s.h.
028:076 Psychological Aspects of Sport and Physical Activity 3 s.h.

Guided Independent Study or transfer courses may not be used to fulfill HSS foundation course requirements after a student has declared a health and sport studies major. Students who transfer to The University of Iowa and wish to substitute courses they have completed at other institutions before declaring an HSS major for any of the foundation course requirements must complete a Request For Substitution of Courses form, available from the department office. Substitutions are granted only on the basis of course content duplication. At least half of all credit in the major must be earned in residence at The University of Iowa.

Health Promotion

The health promotion program integrates the theoretical and the applied study of health education with the biological, behavioral, and social processes that affect individual and community health. It encourages students to envision health promotion as a multidisciplinary tool for building healthy communities and empowering individuals at greater risk for disease and premature death. Lifestyle interventions, community health education, and environmental health supports are central tenets of this program.

Health promotion prepares students for employment opportunities in hospital-based and corporate-based wellness programs, nonprofit health agencies, commercial fitness enterprises, and federal and state health promotion agencies. Employment opportunities in these sectors have been good to excellent and are expected to increase, according to U.S. Department of Labor projections.

The undergraduate curriculum provides opportunities to develop introductory and advanced skills in physical activity promotion and exercise prescription, dietary assessment and planning, stress management, health communication, and facility-based management.

Health promotion courses address certification competencies for the American College of Sports Medicine (ACSM) Health Fitness Instructor, the National Commission for Health Education Credentialing Certified Health Education Specialist (CHES), and the National Strength and Conditioning Association (NSCA)—National Strength and Conditioning Specialist.

Community and clinical practicum experiences give students the opportunity to apply health promotion concepts and skills. As a capstone experience, supervised internships are available in a variety of organizational settings, both nationally and internationally. To be admitted to the health promotion program, students must complete a minimum of 24 s.h. at The University of Iowa, including 004:007 General Chemistry I (or one year of high school chemistry), 004:008 General Chemistry II, 027:053 Human Anatomy, 22S:025 Elementary Statistics and Inference, and 002:002 Introductory Animal Biology (or 002:021 Human Biology). Equivalent or higher-level courses that address the same content areas may be substituted with the department’s approval.

Applicants must have a g.p.a. of at least 2.70 in all University of Iowa course work and a cumulative g.p.a. of at least 2.70.

Transfer students must meet the same requirements (including the same chemistry, biology, anatomy, and statistics courses), except that they must have completed a minimum of 12 s.h. at The University of Iowa.

Students who have a University of Iowa or cumulative g.p.a. lower than 2.70 may apply under an exceptional admission policy. Admission forms are available on the department’s web site. Forms must be completed and submitted for consideration to the department’s undergraduate director by October 15 for spring admission and by March 15 for fall admission. Once admitted, students should plan on a course of study of at least two years.

Students in health promotion must complete the 9 s.h. of HSS foundation courses and the following course work.

Health Promotion Core

The following courses are required (19 s.h.).

027:140 Exercise Physiology for Practitioners 3 s.h.
028:130 Human Nutrition 3 s.h.
028:138 Exercise Testing and Prescription 4 s.h.
028:141 Health Promotion Theory and Practice 3 s.h.
028:142 Worksite Health Promotion 3 s.h.
028:145 Health Promotion Processes 3 s.h.

Health Promotion Electives

Students must complete 12 s.h. of electives or the internship option, which consists of 6 s.h. chosen from the list of electives plus 028:190 and 028:191. In order to be eligible for an internship, students must earn a grade of C- or higher in each of their health promotion core and elective courses.

Electives:

07C:112 Human Sexuality 3 s.h.
07C:185 Introduction to Substance Abuse 3 s.h.
028:030 Principles of an Exercise Class 2 s.h.
028:031 Health-Related Muscular Fitness 2 s.h.
028:032 First Aid and CPR for Instructors 2 s.h.
028:034 First Aid and CPR for Instructors 2 s.h.
028:035 Stress Management 2 s.h.
028:132 Fitness/Sport Nutrition 3 s.h.
028:133 Nutrition through the Life Span 3 s.h.
028:134 Nutrition Intervention 3 s.h.
028:136 Physical Activity Through the Life Span 3 s.h.
028:143 Health Communications Programming 3 s.h.
028:144 Peer Health Education 2 s.h.
028:146 Seminar: Health Education Specialist 2 s.h.
028:147 Promoting Health Globally 2 s.h.
028:148 Practicum in Health Promotion 1 s.h.
028:166 Exercise Management: Chronic Disease Lab 1 s.h.
028:194 Honors Readings 1-2 s.h.
028:195 Honors Problems 3-4 s.h.
071:120 Drugs: Their Nature, Action, and Use 2 s.h.
071:130 Intermediate Pharmacology 3 s.h.
152:150 Global Health Seminar 2 s.h.
152:152 Global Health Conference 1-3 s.h.

Internship option:

Courses chosen from the preceding list of electives 6 s.h.
028:190 Preinternship Seminar 1 s.h.
028:191 Internship 6, 12 s.h.

Sport Studies

This program is for students who want to examine sport within its historical and contemporary cultural contexts. Course work in the history, sociology, and psychology of sport and physical activity provides students with the critical skills necessary to understand sport as a significant aspect of cultural life. Sport’s interactions with educational institutions, the media, the economy, and the political system are examined critically. Race, class, and gender differences in the sport experience are explored.

Many students use their experience in this program to prepare for graduate school. For others, the required second area of concentration or minor serves as an introduction to careers in a number of fields, such as sport journalism and athletic administration.

Students enrolled in the sport studies program must complete the 9 s.h. of HSS foundation courses, the sport studies core, and selected electives.

Sport Studies Core

The following courses are required (12 s.h.).

028:078 Women, Sport, and Culture 3 s.h.
028:175 Sport and the Media 3 s.h.
028:177 Western World Sport: Greeks to Present 3 s.h.
028:178 Sport in the U.S. to 1900 3 s.h.

Sport Studies Electives

Students must complete at least 11 s.h. of course work from courses offered by the Department of Health and Sport Studies. The following are suggested.

028:035 Stress Management 2 s.h.
028:077 Understanding Peak Performance in Sport 2 s.h.
028:079 Race and Ethnicity in Sport 3 s.h.
028:136 Physical Activity through the Life Span 3 s.h.
028:143 Health Communications Programming 3 s.h.
028:117 Human Growth and Motor Development 3 s.h.
028:176 Sport and Nationalism 3 s.h.
028:179 The American Vacation 3 s.h.
028:180 Theory and Ethics of Coaching 3 s.h.
028:188 Twentieth-Century U.S. Sport 3 s.h.
028:193 Independent Study arr.
028:194 Honors Readings 1-2 s.h.
028:195 Honors Problems 3-4 s.h.

**Concentration or Minor**

Sport studies students also must complete a concentration or minor of 15 s.h. in an area, program, or department outside health and sports studies—for example, American studies, business administration, journalism, or women’s studies. They must choose the area in consultation with their adviser. Of the 15 s.h., 6 must be earned in 100-level courses or in courses designated as advanced by the offering unit. No course counted for the concentration or minor may be taken pass/nonpass.

**Four-Year Graduation Plan**

The Four-Year Graduation Plan is not available for the B.A. in health and sport studies. Students are encouraged to work with their advisers to develop an individual graduation plan.

**Honors**

The honors program in health and sport studies is designed for superior students. It gives participants some research experience and a perspective on graduate study. To be eligible for honors study in the Department of Health and Sport Studies, a student must have declared a major in the department and be a member of the University Honors Program, which requires that students maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information). Additional information about the honors program in health and sport studies can be found on the department’s web site.

**Minor**

A minor in health and sports studies requires at least 15 s.h. of course work in the department with a g.p.a. of at least 2.00. Of the 15 s.h., 6 must be earned in 100-level courses or in courses designated as advanced by the offering unit. No course counted toward the minor may be taken pass/nonpass.

**Coaching Endorsement**

Any student in a teaching licensure program may receive a coaching endorsement on his or her license by completing the following courses and applying through the College of Education’s Office of Teacher Education and Student Services.

- 027:053 Human Anatomy 3 s.h.
- 027:057 Basic Athletic Training 3 s.h.
- 027:117 Human Growth and Motor Development 3 s.h.

**Coaching Authorization**

Any student in a nonteaching program may receive coaching authorization by completing the following courses and applying directly to the Iowa Department of Public Instruction. Application forms for the coaching authorization are available at the department office.

- 027:053 Human Anatomy 3 s.h.
- 027:057 Basic Athletic Training 3 s.h.
- 027:117 Human Growth and Motor Development 3 s.h.
- 028:180 Theory and Ethics of Coaching 3 s.h.
*Students should take 027:053 and obtain first aid certification before taking 027:057.

In addition, it is highly recommended that students obtain practical coaching experience. Such experience may be available through local public and private schools, recreation departments, and community groups. Students eligible for coaching endorsement (students who plan to be licensed as teachers) may earn credit by registering for 075:198 Coaching Practicum.

**Graduate Programs**

The department offers the Master of Arts and the Doctor of Philosophy, both with two areas of specialization.

**Master of Arts**

Areas of specialization for the M.A. are psychology of sport and physical activity, and sport studies. Students in psychology of sport and physical activity may choose an emphasis on sport psychology or sport administration. Students in sport studies may choose an emphasis on cultural studies of sport or athletic administration.

The degree is awarded upon completion of at least 33 s.h. of graduate course work including thesis, or 36 s.h. without thesis. All master’s students must complete a group of foundation courses, supplemented with work in their specialization area.

**FOUNdATION COURSES**

- 028:202 Critical Perspectives 3 s.h.
- 028:204 Research Methodologies 3 s.h.
- 028:300 Research Colloquium 1 s.h.
A graduate-level course in statistics or cultural analysis 3 s.h.

**Specialization Areas**

**Psychology of Sport and Physical Activity**

This specialization focuses on the dynamic interaction of psychological, cultural, and behavioral processes that inform and explain behavior in sport, health, and physical activity. The curriculum integrates the psychosocial aspects of participation in sport and physical activity with an analysis of the health consequences of a sedentary lifestyle. In addition to providing a theoretical framework for understanding sport and health-related behavior, the specialization provides students with an opportunity to develop skills in exercise prescription and assessment, dietary assessment, and stress management. Practicums are available at The University of Iowa Student Health Service, The University of Iowa Hospitals and Clinics, Johnson County Public Health, and local community agencies. Graduates go on to doctoral programs in sport, health, or associated fields, or they enter health promotion, athletic, or sport professions in government, nonprofit organizations, and business.

**SPORT STUDIES**

Sport studies is an interdisciplinary program drawing on the insights of sociology, history, philosophy, and psychology to produce analyses of health, sport, and physical activity. Graduates go on to doctoral study in cultural studies of sport or to entry-level positions in athletic administration. Students supplement departmental course work with courses in other departments, such as American studies, communication studies, women’s studies, history, psychology, sociology, and business. Internships are available in The University of Iowa Athletic Department.

**Assistantships**

A number of teaching and research assistantships are available; applications should be made directly to the department chair. Teaching assistants teach physical education skills courses or support general education courses offered by the department. Research assistants work directly with faculty members to support research programs.

**Doctor of Philosophy**

The Ph.D. program offers two areas of specialization: psychology of sport and physical activity, and sport studies. Students in the sport studies concentration may choose an emphasis in either athletic administration or cultural studies. Most students enter the doctoral program after completing a master’s degree. The Ph.D. entails 60 s.h. of course work beyond the master’s degree. All doctoral students must complete a total of at least 72 s.h. of graduate work, including general requirements for the master’s degree and credit for the dissertation. They also must satisfy the residency requirement by completing at least two semesters (minimum of 9 s.h. each) in residence at The University of Iowa.

**FOUNdATION COURSES**

- 028:202 Critical Perspectives 3 s.h.
- 028:204 Research Methodologies 3 s.h.
- 028:300 Research Colloquium 3 s.h.

In addition, all doctoral students must complete a dissertation and take at least 3 s.h. of advanced research methodologies.
Specialization Areas

PSYCHOLOGY OF SPORT AND PHYSICAL ACTIVITY

The psychology of sport and physical activity program is distinguished by its focus on psychological processes as they interact with social and cultural forces. Scholarship in this program advances understanding of behavior in sport and physical activity through evaluation of theories that predict behavior and through testing interventions that promote sport and physical activity. Interdepartmental study is central to the program; students may draw from course work in psychology, epidemiology, counselor education, and women's studies. The program provides students with the analytical and research skills necessary to teach and pursue scholarship at the university level.

SPORT STUDIES

This specialization is an interdisciplinary program that explores sport with insights from sociology, history, and the humanities as well as interdisciplinary fields such as communication studies and women's studies. Students develop analytical skills in order to produce research and cultural criticism of sport, leisure, dance, and physical activity. Careers in scholarship and teaching are the usual outcomes of such a curriculum.

The sport studies curriculum also provides a foundation for an emphasis on athletic administration. Students who pursue this emphasis usually are preparing for administrative work at all levels within collegiate sport, including Division I opportunities to work in The University of Iowa Athletic Department are available.

Assistantships

Teaching assistantships and research assistantships are available; applications should be made directly to the department chair. Teaching assistants teach throughout the undergraduate program, including physical education courses. Research assistants work directly with faculty members to support research programs.

Courses

028:029 First-Year Seminar 1-2 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

028:030 Principles of an Exercise Class 2 s.h.

028:031 Health-Related Muscular Fitness 2 s.h.
Educational and practical experience for designing resistance training and flexibility programs; preparation for certification with National Strength and Conditioning Association.

028:032 First Aid and CPR 2 s.h.
Leads to American Red Cross first aid and adult CPR certification.

028:034 First Aid and CPR for Instructors 2 s.h.
Preparation for American Red Cross first aid and adult CPR instructor certification. Prerequisite: first aid/CPR certificate.

028:035 Stress Management 2 s.h.
Stress, the stress response; causes and consequences, management.

028:074 Inequality in Sport 3 s.h.
Sport experiences, barriers to participation based on sexism, racism, classism, agism, heterosexism. Prerequisite: health and sport studies major.

028:075 Health in Everyday Life 3 s.h.
Personal health strategies; focus on disease prevention, wellness. GE: social sciences.

028:076 Psychological Aspects of Sport and Physical Activity 3 s.h.
Psychological theory and research related to sport and physical activity; motivation, aggression, attribution, socialization, competitive anxiety, leadership.

028:077 Understanding Peak Performance in Sport 2 s.h.
Concepts that underlie peak performance; hands-on experience through lecture/discussion, overnight assignments, activities; understanding of how to achieve peak performance in sport and physical activity, other areas of life.

028:078 Women, Sport, and Culture 3 s.h.
Feminist analysis of girls’ and women’s sport experiences; reproduction of gender through sport, recent changes in women’s intercollegiate athletics, media representations of women in sport, feminist critiques, alternatives to sport. Same as 151:078.

028:079 Race and Ethnicity in Sport 3 s.h.
Structural and ideological barriers to racial and ethnic equality in sport, with focus on African American sport experiences; historical and contemporary issues, media representations. Same as 151:078.

028:130 Human Nutrition 3 s.h.
Physiology, biochemistry of human nutrition; appropriate food sources; qualitative and quantitative evaluation of diets using standard references; simple arithmetic and computer skills required.

028:132 Fitness/Sport Nutrition 3 s.h.
Relationship between nutrition, fitness and sport performance; basic nutrition, physiology, chemistry, psychology, food preparation. Prerequisites: health and sport studies major and 028:130.

028:133 Nutrition through the Life Span 3 s.h.
How body processes and nutritional needs change with age and the physiological state; effects of food-drug medication interactions, anorexia, bulimia, and adolescent pregnancy; emphasis on food and health habits that minimize nutrition-related problems. Prerequisite: 028:130. Same as 151:133.

028:134 Nutrition Intervention 3 s.h.
Strategies for meeting unique nutritional needs of individuals with limitations imposed by genetics, trauma, aging, medications, and so forth. Prerequisite: 028:130.

028:136 Physical Activity through the Life Span 3 s.h.
Physical activity determinants in society, school, workplace, and community-based health promotion interventions to improve activity levels; practical experiences.

028:137 Exercise Testing and Prescription 4 s.h.
Basic techniques in physical fitness assessment, prescription for exercise for healthy and unhealthy adults, promotion of physical activity within communities; provides knowledge and skill competencies required for certification as American College of Sports Medicine health fitness instructor. Prerequisites: 028:140 and admission to health promotion program.

028:141 Health Promotion Theory and Practice 3 s.h.
Principles of epidemiology and health behavior theories applied to multilevel frameworks for health promotion. Prerequisite: 028:075.

028:142 Worksite Health Promotion 3 s.h.
Management and organizational theories; assessment, planning, implementation, and evaluation of clinical and worksite (targeted) health promotion programs.

028:143 Health Communications Programming 3 s.h.
Concept of health communications; principles of health communications methodology; development of individual and group attitudes and behaviors toward health and illness. Prerequisite: 028:142.

028:144 Peer Health Education 2 s.h.
Experience acting as a peer educator, assisting students in their residential areas, presenting educational outreach programs on health topics, making referrals to campus and area agencies. Prerequisite: consent of instructor.

028:145 Health Promotion Processes 3 s.h.
Assessment, planning, implementation, and evaluation of health promotion programs. Prerequisite: 028:144.

028:146 Seminar: Health Education Specialist 2 s.h.
Development and operation of programs and services related to the seven professional responsibility areas of health educators; preparation for attainment of credentials required for national certification of the health education specialist (C.H.E.S.).

028:147 Promoting Health Globally 2 s.h.
Major global health threats in the United States and abroad; impact of culture, history, economics on health disparities; approaches, programs, policies to remedy them. Same as 152:158.

028:148 Practicum in Health Promotion 1-2 s.h.
Experience in planning, implementing clinical and community health promotion strategies including nutrition, physical fitness, cardiac rehabilitation, respiratory rehabilitation. Prerequisite: consent of instructor.

028:166 Exercise Management: Chronic Disease Lab 1 s.h.
Laboratory experiences in design and implementation of exercise testing and prescription for special populations, including individuals with chronic diseases. Corequisite: 028:138. Same as 151:166.

028:175 Sport and the Media 3 s.h.
Representations of sport in television, the press, fiction, film, biographies, adolescent fiction.

028:176 Sport and Nationalism 3 s.h.
Role of sport in the phenomenon of nationalism; selected theories; case studies on Ireland, Australia, British West Indies, Cold War U.S., fascist Europe.

028:177 Western World Sport: Greeks to Present 3 s.h.
Development of Western sport; relation to social, political, economic, intellectual factors.

028:178 Sport in the U.S. to 1900 3 s.h.
Development and institutionalization of sport from colonial times to 1900.

028:179 The American Vacation 3 s.h.
Social history of vacations; cultural significance of contemporary patterns; focus on how experiences and meanings are shaped by race, class, gender. Same as 151:174.

028:180 Theory and Ethics of Coaching 3 s.h.
Philosophical bases, ethical issues; theoretical, practical applications.

028:188Twentieth-Century U.S. Sport 3 s.h.
Historic development of sport in the United States since 1900, economic forces, professional football and baseball. Prerequisite: 028:178.

028:190 Preinternship Seminar 1 s.h.

028:191 Internship 1 s.h.
Practical field experience; direct leadership, program planning, administrative procedures. Prerequisites: 028:190 and consent of instructor.

028:193 Independent Study 1 s.h.
Problem in a specific area. Prerequisite: consent of instructor.

028:194 Honors Readings 1-2 s.h.
Prerequisite: consent of instructor.

028:195 Honors Problems 3-4 s.h.
Prerequisite: consent of instructor.

028:202 Critical Perspectives 3 s.h.
Application of critical theories to cultural meanings and issues of sport, health, physical activity.

028:204 Research Methodologies 3 s.h.
Design, interpretation of research, emphasis on quantitative approaches.

028:235 Stress Management 2-3 s.h.
Stress and the stress response; causes and consequences; management strategies.

028:243 Planning and Evaluating Health Interventions 3 s.h.
Theoretical and applied aspects of planning and evaluating health interventions in multiple settings, including culturally relevant programming.

028:244 Seminar in Health and Physical Activity Behavior 3 s.h.
Health behavior theories and their relevance to individual, interpersonal, and community-wide health promotion interventions.

028:249 Epidemiology of Physical Activity 3 s.h.
Physical activity/disease relationships examined through application of epidemiologic methods, including research design, interpretation of studies, selection of measures to fit research questions. Same as 173:245.
Physical Education Skills

Physical Education Skills courses are approved as an option in the distributed general education portion of the General Education Program.

285:005 Fitness and Wellness for Life 2 s.h.
Lecture material applied to the design of a personalized fitness/wellness program in discussion, laboratory sessions. GE: physical education.

285:006 Tae Kwon Do II 1 s.h.
GE: physical education. Prerequisite: 285:007 or consent of instructor.

285:011 Badminton I 1 s.h.
GE: physical education.

285:012 Bowling I 1 s.h.
GE: physical education.

285:014 Bowling II 1 s.h.
GE: physical education. Prerequisite: 285:013 or consent of instructor.

285:020 Fitness Walking 1 s.h.
GE: physical education.

285:024 Dodge Ball 1 s.h.
GE: physical education.

285:026 Golf 1 s.h.
GE: physical education.

285:027 Hatha Yoga 1 s.h.
GE: physical education.

285:048 Open Weight Training 1 s.h.
GE: physical education. Prerequisite: 285:029 or consent of instructor.

285:050 Abdominal Toning 1 s.h.
GE: physical education.

285:051 Karate I 1 s.h.
GE: physical education.

285:052 Karate II 1 s.h.
GE: physical education. Prerequisite: 285:051 or consent of instructor.

285:053 Kick Boxing I 1 s.h.
GE: physical education.

285:057 Soccer I: Indoor 1 s.h.
GE: physical education. Prerequisite: 285:056 or consent of instructor.

285:058 Soccer II: Indoor 1 s.h.
GE: physical education. Prerequisite: 285:057 or consent of instructor.

285:059 Soccer: Outdoor 1 s.h.
GE: physical education.

285:065 Soccer I: Outdoor 1 s.h.
GE: physical education.

285:066 Table Tennis 1 s.h.
GE: physical education.

285:067 Tae Kwon Do I 1 s.h.
GE: physical education.

285:070 Weight Control 1 s.h.
GE: physical education.
programs, including American studies, African American world studies, ancient civilizations, Asian studies, international studies, Latin American studies, and women's studies.

**Undergraduate Program**

Baccalaureate graduates in history work in a variety of positions in business, education, public service, advertising, and journalism. Many plan further training in history, law, religion, library and information science, or social work.

History majors are encouraged to take courses in other fields that illuminate and expand the meaning of history courses and that introduce information and a variety of approaches to understanding how societies and cultures work.

For example, students majoring in history are encouraged to complete the College of Liberal Arts and Sciences General Education Program foreign language component by choosing a language that fits their interests in history. The history faculty particularly encourages study abroad programs that complement students' foreign area interests. Majors also are encouraged to improve their writing and speaking skills.

The major is for students with a general interest in history. Course requirements include a colloquium, which usually is taken during the sophomore year or the semester after the student elects a major in history. The required portfolio, which should consist of at least three papers the student has written while enrolled in history classes, is submitted to the student's adviser during the semester before graduation.

College Level Equivalency Program (CLEP) and Advanced Placement Program credit cannot be used as part of the history major. Transfer work that is equivalent to University of Iowa course work can be accepted toward the major; but at least 18 s.h., including the colloquium, must be earned at the University of Iowa.

Undergraduate courses are divided into four areas: American history (prefix 16A), European history (16E), non-western world history (16W), and courses that have no area designation (016).

**REQUIRED COURSES**

**Colloquium**

One of these:

16A:051 Colloquium for History Majors (American) 3 s.h.
16E:051 Colloquium for History Majors (European) 3 s.h.
16W:051 Colloquium for History Majors (World) 3 s.h.

First-year students who enter the University as history majors take the colloquium during their sophomore year; students who declare history after their first year take the colloquium during the semester following their declaration. Every colloquium includes assigned papers; students must include in their history portfolio at least one paper from their colloquium.

**Other Required Courses**

Students must complete 36 s.h. in history courses, including the following:

At least 6 s.h. of American history, including at least one course numbered 16A:100 or above
At least 6 s.h. of European history, including at least one course numbered 16E:100 or above
At least 6 s.h. of non-western world history, including at least one course numbered 16W:100 or above

*At least 3 s.h. of pre-1700 history (see "Pre-1700 Courses")

* A course taken to fill the pre-1700 history requirement also may be counted toward the requirement in American, European, or non-western world history.

**History Electives**

In addition to the requirements listed above, the major requires 15 s.h. of elective courses in history (the total may include the colloquium). History electives may include no more than two of the following: 016:001 Western Civilization I, 016:002 Western Civilization II, 016:003 Western Civilization III, 016:005 Civilizations of Asia: China, 016:006 Civilizations of Asia: Japan, and 016:007 Civilizations of Asia: South Asia.

Electives also may include all other courses offered by the department numbered 016:040, 16A:040, 16E:040, and 16W:040 or above. No more than 18 s.h. of American history (prefix 16A) may be counted toward the major.

**Pre-1700 Courses**

The following courses fulfill the 3 s.h. requirement for pre-1700 history.

016:001 Western Civilization I 3-4 s.h.
016:002 Western Civilization II 3-4 s.h.
016:005 Civilizations of Asia: China 3 s.h.
016:006 Civilizations of Asia: Japan 3 s.h.
016:007 Civilizations of Asia: South Asia 3 s.h.
016:045 Middle East and Mediterranean, Alexander to Suleiman 3 s.h.
016:160 The Atlantic World 1500-1800 3-4 s.h.
16A:115 Native North America I:
Precontact-1789 3 s.h.
16A:121 The Puritan Experience 2-3 s.h.
16A:131 The Frontier in American History to 1840 3 s.h.
16A:161 The Colonial Period in America 3 s.h.
16E:101 Ancient Egypt and the Ancient Near East 3 s.h.
16E:102 Barbarians in the Ancient World 3 s.h.
16E:103 Ancient Slavery and Modern Ideology 3 s.h.
16E:104 The World of Ancient Greece 3 s.h.
16E:105 Women in the Ancient World 3 s.h.
16E:106 Warfare in Ancient Mediterranean Society 3 s.h.
16E:107 The Hellenistic World and Rome 3 s.h.
16E:108 Rise of the Roman Empire 264 BCE-14 CE 3 s.h.
16E:110 Medieval Civilization 3 s.h.
16E:111 Medieval Intellectual History 300-1150 3 s.h.
16E:112 Medieval Intellectual History 1150-1500 3 s.h.
16E:113 Economic and Social History of Medieval Europe 3 s.h.
16E:114 Foundations of Anglo-American Law 4 s.h.
16E:115 Twelfth-Century Renaissance 3 s.h.
16E:117 History of the Medieval Church 3 s.h.
16E:118 The Transition from Manuscript to Print 3 s.h.
16E:119 Women, Power, and Society in Medieval Europe 3 s.h.
16E:120 The Book in the Middle Ages 3 s.h.
16E:122 European Religious Reformations 1250-1750 3 s.h.
16E:125 Society and Gender in Europe 1200-1789 3 s.h.
16E:126 The French Revolutions and Human Rights 3 s.h.
16E:127 European History in Text and Film 4 s.h.
16E:128 The Age of Religious Wars 3 s.h.
16E:131 England: Reformation to the Civil War 1500-1649 3 s.h.
16E:133 Early Modern Europe 3 s.h.
16E:139 Ancient and Medieval Science 3 s.h.
16E:176 Imperial Russia 1598-1801 3 s.h.
16W:111 Colonial Latin America 3 s.h.
16W:120 Pre-Colonial African History 3 s.h.
16W:172 Japan—Age of the Samurai 3 s.h.
16W:177 Monks, Merchants, and Samurai 3 s.h.
16W:184 History of Central Asia 3 s.h.
16W:192 Globalization in History 1500-1800 3 s.h.

**Teacher Licensure**

Students who wish to qualify for teaching licensure in secondary social studies education must complete their history major, at least 15 s.h. in U.S. history (16A), at least 15 s.h. in non-U.S. history (16E and 16W), and 15 s.h. in a related area chosen from economics, geography, anthropology, psychology, sociology, or American government. Courses taken as part of the history major, including Colloquium for History Majors (numbered 16A:051, 16E:051, or 16W:051) may be counted as part of the 15 s.h. in U.S. history and the 15 s.h. in non-U.S. history required for certification.

Students also must complete College of Education professional education courses required for teaching licensure. Not all political science courses count toward certification to teach American government. Course content must center around the American political system or American political issues.

For information about the Teacher Education Program (TEP) or the secondary social studies education program, consult the social studies program coordinator at the College of Education.

**Four-Year Graduation Plan**

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan.

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

**Before the fifth semester begins:** three courses in the major (including Colloquium for History Majors) and at least one-half of the semester hours required for graduation
Before the seventh semester begins: four
more courses in the major and at least
three-quarters of the semester hours required for
graduation

Before the eighth semester begins: three
more courses in the major and submission of the
portfolio of written work to the student’s adviser

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

Honors

The requirement for entry into the history
department’s honors program is the same as that
for entry into the University Honors Program: a
cumulative University of Iowa g.p.a. of at least 3.33. Through its honors program, the
department provides outstanding students with
opportunities to enhance their history major in
several ways.

The most significant part of the honors program
in history is the honors thesis. The thesis is an
extended research paper (30-50 pages), usually
completed during the senior year. Research for
the thesis is done under the supervision of a
faculty member who specializes in the field in
which the student undertakes his or her
research. Students register for 3 s.h. of 016:091
Honors Seminar and 3 s.h. of 016:092 Honors
Thesis in each of two semesters. The 6 s.h. count
toward the total number of hours needed for the
history major.

Minor

Any student who completes at least 15 s.h. in
history with a g.p.a. of 2.00 may earn a minor. Of
the 15 s.h., 12 must be in advanced courses
taken at The University of Iowa. For the minor,
all courses numbered above 016:080, 16A:080,
16E:080, and 16W:080 are regarded as
advanced.

Graduate Programs

The graduate programs in history prepare
students for occupations such as high school or
college teaching, publishing, commercial
research, foundations and nongovernmental
organizations, and government or other public
service. With additional specialized training, students of history become qualified for careers in
archival work, library work, museum work, or
historical site preparation and display. Some
students enter the joint program leading to
degrees in both law and history (see “Joint Law
and Graduate Degree Program” in the College of
Law section of the Catalog).

Students interested in graduate work should
obtain a copy of the current Guide to Graduate
Study at The University of Iowa, available from the
departmental office. The guide is revised every spring to include the latest faculty listing,
research interests of faculty members, detailed
regulations on study toward advanced degrees,
and other information for prospective students.

Master of Arts

The department offers two M.A. programs. The
first is for students who plan to work toward the
Ph.D. degree. It requires a minimum of 30 s.h. of
credit, including the completion of a research
essay. The candidate must earn at least 24 s.h. of
credit in the history department, including at
least two seminars or one seminar and one
readings course. One seminar or readings course
must be taken in each of the first two semesters of
residence. Students must earn 12 s.h. in the
area of their essay topic and at least 6 s.h. in a
second division, including either a seminar or a
readings course.

The essay in the major division must be based on
original research and should be approximately
10,000 to 15,000 words in length. It usually
begins as a term paper for the seminar in the
major division and is completed following the
semester under the guidance of the supervisor.
The finished product should emulate the
character of articles in learned journals, just as
the Ph.D. dissertation takes the form of a
full-length scholarly monograph.

The second M.A. program is designed for students who do not intend to pursue the
doc torate in history. The basic course
requirements are much the same as those for the
Ph.D.-track Master of Arts. Students must earn
30 s.h. overall, including 24 s.h. in history. Of
the 24 s.h., 12 are earned in one major division
and must include at least one readings or seminar
course. The two plans differ mainly in respect
to concentration in fields: the Ph.D. track
emphasizes the development of research
capabilities culminating in the essay; the
non-Ph.D. track stresses breadth of learning.
Students in the non-Ph.D. track must take at
least 6 s.h. in each of two other divisions in
history, or 6 s.h. in one other division in history
and 6 s.h. in a related department. Included in
these 12 s.h. must be at least one readings or
seminar course in history.

After completing these requirements, or during
the semester in which they are to be completed,
The M.A. candidate must take an oral and written
comprehensive examination in the major
division.

Doctor of Philosophy

Students who earn the M.A. with research essay
are admitted to the Ph.D. program on the
favorable recommendation of the examining
committee. Students who earn an M.A. at
another university must meet the general
requirements for admission to the Graduate
College (see the Graduate College section of the
Catalog) and to the department. They must
submit a writing sample, such as a seminar paper
or an M.A. thesis. They must take a research
seminar during their first two semesters in
residence at Iowa.

The candidate must earn at least 72 s.h. of credit,
including credit for work done toward the
master’s degree. The 72 s.h. must include at least
eight 200-level courses of 4 s.h. each, taken in
research seminars (not fewer than three) or
graduate readings courses. At least five of these
eight courses must be completed before the
student takes the comprehensive examination.

Courses taken at the M.A. level may be counted
toward this requirement. The candidate also
must take a graduate course in the philosophy of
history, historiography, or methods of historical
research.

The department has no general language
requirement for the Ph.D., but the supervising
faculty member may require the candidate to
demonstrate a reading knowledge of one or more
foreign languages and proficiency in the use of
other study tools. The candidate may not
complete the comprehensive examination until
these requirements have been met.

The comprehensive written and oral examination
covers three distinct fields, two of which must be
in a major division that is chosen from the
following divisions.

The ancient world
Medieval Europe
Europe, early modern
Europe, modern
Russia and the former Soviet Union
United States
Latin America
China
Japan
India
Africa

The student may construct another field, subject
to approval by the comprehensive exam
committee.

The third field must be a division outside the
candidate’s major division or in a related
department outside history. The committee may
define and delimit the individual fields for
examination. It may also set, separately for each
field, the character of the written portion of the
comprehensive examination, which may take the
form of a syllabus, a critical bibliography, a topical
paper, or any other form or combination of forms
that the committee deems suitable. The oral
portion of the comprehensive examination focuses on issues and problems arising from the
examination papers.

The candidate must submit to the dissertation
committee a written prospectus for the
dissertation no later than the semester following
completion of the comprehensive exams. The
committee consists of at least five members,
including at least one member from outside the
department. It considers the prospectus and may
approve it, reject it, or require its revision. When
the dissertation is completed in final form, the
committee administers the final examination for
the doctorate, a formal oral defense of the
dissertation that usually lasts two hours.

Admission

Applicants for admission to the graduate program
in history must meet the general requirements
for admission to the Graduate College and must
submit academic transcripts and Graduate Record Examination (GRE) General Test scores.

In addition, students must submit examples of
original writing to the history department, such
as a term paper, a seminar paper, or an honors
thesis, letters of recommendation from three
persons familiar with the student’s past academic
work, and a one- or two-page personal statement...
of the applicant's purpose in taking graduate work. All application materials are due by January 10.

Special Facilities

The University of Iowa Libraries are unusually strong in all aspects of U.S. history. The Main Library houses the Henry A. Wallace papers and related collections, the Iowa Women's Archives, and other unique materials. In European history, special strengths include the fine collections of French and English materials. The State Historical Society of Iowa in Iowa City and the Herbert Hoover Presidential Library in West Branch also possess valuable research materials.

Courses

Courses numbered 016:001 through 016:040 are approved for General Education. Some other courses are approved in the foreign civilization and culture General Education area. They cannot be taken pass/no pass, even when they are taken as electives. Majors should take 16A:051, 16E:051, or 16W:051 in the sophomore year or in the first semester after declaring the major. Other courses numbered below 200 are open to first-year students who already have completed the General Education Program historical perspectives component. Courses numbered 200 and above are offered as occasion demands.

For Undergraduates

016:001 Western Civilization I 3-4 s.h.
Ancient and medieval. GE: foreign civilization and culture or historical perspectives.

016:002 Western Civilization II 3-4 s.h.
Early modern world. GE: foreign civilization and culture or historical perspectives.

016:003 Western Civilization III 3-4 s.h.
The modern world. GE: foreign civilization and culture or historical perspectives.

016:051 Civilizations of Asia: China 3 s.h.
GE: foreign civilization and culture or historical perspectives. Same as 039:055.

016:052 Civilizations of Asia: Japan 3 s.h.
GE: foreign civilization and culture or historical perspectives. Same as 039:056.

016:053 Civilizations of Asia: South Asia 3-4 s.h.
GE: foreign civilization and culture or historical perspectives. Same as 039:057.

016:054 Issues in Modern History: The Vietnam War in Historical Perspective 3 s.h.
GE: historical perspectives.

016:055 Issues in Modern History: Communities and Society in History 3 s.h.
GE: historical perspectives.

016:056 Issues in Modern History: Europe's Expansion Overseas 3 s.h.
GE: historical perspectives.

016:057 Issues in Modern History: Gender in Historical Perspective 3 s.h.
GE: historical perspectives.

016:058 Issues: Twentieth-Century Crisis 3 s.h.
GE: historical perspectives.

016:059 Issues in Medieval Society 3 s.h.
GE: historical perspectives.

016:060 Issues: Nature and Society in Historical Perspective 3 s.h.
GE: historical perspectives.

016:061 Issues in European Politics and Society 3 s.h.
GE: historical perspectives.

016:063 Medieval Religion and Culture 3 s.h.
GE: historical perspectives. Same as 032:025.

016:064 Modern Religion and Culture 3 s.h.
GE: historical perspectives. Same as 032:026.

016:065 Perspectives: Diversity in American History 3 s.h.
People, cultures, behavior, and values that have shaped American society and its past. GE: cultural diversity.

016:066 Middle East and Mediterranean, Alexander to Suleiman 3 s.h.
Same as 20E:071, 032:061.

016:067 First-Year Seminar 1-2 s.h.
Small discussion class taught by a faculty member, topics chosen by instructor, may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

16A:051 Colloquium for History Majors (American) 3 s.h.
Prerequisite: history major or consent of instructor.

16E:051 Colloquium for History Majors (European) 3 s.h.
Prerequisite: history major or consent of instructor.

16W:051 Colloquium for History Majors (World) 3 s.h.
Prerequisite: history major or consent of instructor.

16E:058 Liturgy and Devotion in Christian Tradition 3 s.h.
Same as 032:058.

16W:061 Africa and the Atlantic Slave Trade 3 s.h.

16E:074 Popular Music in American Culture Same as 045:074.

16E:082 The World since 1945 3 s.h.

16E:085 Early Modern Catholicism 3 s.h.
Same as 032:085.

016:090 Individual Study: Undergraduate arr.

016:091 Honors Seminar 0-3 s.h.

016:092 Honors Thesis 3 s.h.
Individual research and writing under supervision of faculty member; occasional group sessions with other Honors Thesis students.

For Undergraduate and Graduate Students

World and General History

016:100 Historical Background of Contemporary Issues arr.

16W:110 Topics in Latin American History 3 s.h.

16W:111 Colonial Latin America 3 s.h.
Cultural, institutional continuity from 16th century to independence.

16W:112 Introduction to Modern Latin America 3 s.h.
Cultural, institutional continuity from independence to present.

16W:114 Latin America and the U.S.: The Historical Perspective 3 s.h.

16W:115 Latin American Revolution 3 s.h.


16W:119 African and African American Interactions 3 s.h.
The slave trade and its legacy in Africa and the Americas; cultural, political interaction between Africans and African Americans; images of Africa in African American thought; Absolutism and its African critics. Same as 129:138.

16W:120 Museum Literary and Historical Memory 3 s.h.
Same as 149:130.

16W:121 Pre-Colonial African History 3 s.h.
Africa to 1880; oral tradition, other sources; political development, ecological change, slavery and slave trade. Same as 129:163.

16W:122 African History since 1880 3 s.h.
Africa in colonial, post-colonial period; economics, political structures of colonialism; social change, political life in the 20th century. Same as 129:164.

16W:127 Human Rights Politics, 1940-Present 3-4 s.h.

016:136 History of Medicine in Western Society 3 s.h.
Theories about the body, illness, medical practice in social, economic, intellectual contexts; role of healers, professionalization of practitioners; evolution of public, private medical institutions; interrelationships of science, medicine, technology. Same as 152:136.

16W:137 History of Public Health 3 s.h.
State-endorsed measures to avert or control disease in society.

016:138 History of International Health 3 s.h.
Foremost problems of health and disease in colonial and postcolonial societies; topical approach. Same as 152:138.

16W:139 U.S. Health Care System Global Perspective 3 s.h.
Same as 152:155.

16W:140 Disease Politics and Health in South Asia 3 s.h.
South Asia’s long-term success lengthening lives and stopping disease, weighed against its continuing burden of infection, violence, pollution, and class-based suffering.

16W:142 Palestine, Israel, and the World since 1890 3 s.h.

016:144 War and Peace in the Twentieth Century 3 s.h.

016:151 Social History of the Violin 1-3 s.h.
The violin’s place in world culture; violin as product, collectible, and icon; the player as artisan, artist, and professional. Same as 025:164.

016:160 The Atlantic World 1500-1800 3 s.h.

16W:161 History of the Modern Caribbean 3 s.h.

16W:172 Japan—Age of the Samurai 3 s.h.
Society, culture, and politics of feudal Japan; social class, gender, norms, and political and economic developments explored through cinema and literature. Same as 39J:172.

16W:173 Modern Japan 3 s.h.
Political, social, and cultural developments of Japanese feudalism; feature films, fiction. Same as 39J:173.

16W:175 Japan and U.S. in Peace and War 3 s.h.
Political, social, economic, and cultural developments in Japan mid-19th to late-20th century. Same as 39J:175.


16W:178 Topics in Asian History Same as 039:175.

016:180 Readings: International Security 3-4 s.h.

16W:182 The Vietnam War in Historical Perspective Same as 039:132.

16W:183 Vietnam War on Film 3-4 s.h.

16W:184 History of Central Asia 3 s.h.

16W:189 South Asia Social Science History 3 s.h.
Key social science topics in South Asia. Prerequisite: 016:007 or equivalent. Same as 39J:176.

016:192 Traditions of Religious Reform 3 s.h.

016:192 Globalization in History 1500-1800 3 s.h.

16W:194 Imperialism and Modern India 3 s.h.
India since 1500 A.D.; emphasis on Moghal and British imperial systems, nationalist movements, current socioeconomic trends. GE: foreign civilization and culture. Same as 039:134.

16W:196 Modern China 1600s to 1920s 3 s.h.
End of the Ming, rise, flourishing of Manchu Qing dynasty; 19th-century internal and external troubles; social, cultural,
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political change in young Republic of China early 1900s. GE: foreign civilization and culture. Same as 039:154.

16W:198 China since 1927 3 s.h.
Communist revolution from 1920s to founding of People's Republic of China in 1949; Mao Zedong's radical policies, Cultural Revolution; Deng Xiaoping's economic reforms; China today. Same as 039:190.

16W:199 Asia News Seminar 2-3 s.h.
Contemporary political, social, and cultural developments in Asia examined through English-language media. Same as 039:194.

American History

16A:061 American History 1402-1877 3 s.h.
Discovery through Civil War; Reconstruction; emphasis on social history of colonial era and social, economic, political developments of Revolutionary, antebellum periods.

16A:062 American History 1877-Present 3 s.h.
Emphasis on social, political developments of Gilded Age, Progressive Era; Great Depression; United States as a world power.

16A:065 Introduction to African American History 3 s.h.
Same as 129:065.

16A:067 Survey of U.S. Women's History 3 s.h.
Private lives and public roles of American women of different class, race, ethnic, religious backgrounds, colonial period to present; women's roles in American life, how women have shaped society, culture, politics; family life, work roles, political participation. Same as 131:067.

16A:104 History of the American Deaf Community 3-4 s.h.
Creation of a distinct language and culture of deaf people in America during the 19th and 20th centuries. Taught in American Sign Language (ASL). Prerequisite: 158:014 or consent of instructor. Same as 158:100.

16A:106 Disability in American History 3 s.h.

16A:107 American Cultural History 1820-1920 3 s.h.
Culture as contested terrain; creation of cultural hierarchy (high and popular culture); struggles over the cultural construction of meaning; competing stories of "America"; advent and signification of mass culture.

16A:108 The Image in America 3 s.h.
Same as 024:108.

16A:109 Law in American History I 3 s.h.
Same as 024:109.

16A:110 Law in American History II 3 s.h.
Same as 024:101.

16A:114 American Economic History 3 s.h.
Economic theory; emphasis on role of population, technology. Prerequisites: 06E:104 for economics majors; 06E:001 and 16A:061 for non-economics majors. Same as 06E:178.

16A:135 American West in the Twentieth Century 3 s.h.
Focus on growth, redistribution of political power, exploitation of and competition for natural resources, intermingling of diverse cultural groups.

16A:137 History of Iowa 3 s.h.

16A:138 American Working Class to 1900 3 s.h.
Origins of modern discourse in class, politics, labor; focus on labor, family, gender, community, culture; resistance; South's defense of slavery; wartime collapse, destruction of slavery. Same as 131:137.

16A:142 American Labor in the Twentieth Century 3 s.h.
Competing philosophies and organizational strategies of workers in a maturing industrial economy; impact of world wars and Great Depression on American workers and their unions; rise of service sector, deindustrialization.

16A:144 American Economic History 3 s.h.
Economic theory; emphasis on role of population, technology. Prerequisites: 06E:104 for economics majors; 06E:001 and 16A:061 for non-economics majors. Same as 06E:178.

16A:146 Immigrant America 1845-1925 3 s.h.
Era of mass immigration in world context; formation, organization of immigrant communities; diverse processes of adaptation, assimilation; rural, urban contrasts; coercion Americanization, immigration restriction.

16A:147 History of Slavery in the U.S.A. 3 s.h.
Origins, development; focus on labor, family, gender, community, culture, resistance; South's defense of slavery; wartime collapse, destruction of slavery. Same as 131:137.

16A:151 United States in World Affairs to 1900 3 s.h.
Origins of modern diplomatic practices; security, territorial and commercial expansion; legal, constitutional problems.

16A:152 United States in World Affairs 3 s.h.
America's emergence as leader in world affairs; imperialism, international collaboration, participation in world wars, the Cold War.

16A:153 U.S.A. in a World at War 1931-1945 3 s.h.
Significance of World War II to the United States.

16A:154 Sexuality in the United States 3 s.h.
Same as 131:158.

16A:155 History of American Society 1776-1850 3 s.h.
Social foundation of Revolutionary America; structure of agriculture, slavery, immigration, family, manufacturing, urbanization, class formation, state formation, reform movements; their relationship to political events, ideology.

16A:158 American Society in Film and Text 1850-1920 3 s.h.
Social foundation of the Civil War; Reconstruction; emergence of industrial and urban society; immigration, agrarian and working class protest, segregation, social reform, progressivism, nationalism, roots of imperialism.

16A:162 American Revolutionary Period 1740-1789 3 s.h.
Political, military history of colonies 1754-1776; imperial upheaval; building a new nation; creation of federal system.

16A:164 Civil War and Reconstruction 3 s.h.
Slavery, political and military conflict; emancipation; reconstruction; their impact on civilians and soldiers, men and women, blacks and whites, North and South.

16A:165 The Gilded Age in America 3 s.h.
Emergence of industrial, urban America, from Civil War through 1890s; emphasis on social, political developments.

16A:166 The Progressive Era in America 3 s.h.
Protest and reform, imperialism, World War I, from 1890s to 1920.

16A:167 The New Era and the New Deal 1920-1940 3 s.h.
United States between the war; emphasis on New Era system, impact of the Great Depression and response by the Hoover administration, the New Deal.

16A:168 The Contemporary U.S. 1940-Present 3 s.h.
Focus on United States as a global power; emphasis on World War II and Cold War, recent patterns of social and economic change, politics of 1950s, 1960s.

16A:169 Jacksonian America 3 s.h.
American history through women's eyes; interaction of biology, economics, politics, ideology; emphasis on suffrage movement, second-wave feminist change. Same as 131:172.

16A:170 Women in American History 1870-Present 3 s.h.
From passage of Fourteenth Amendment to present; interaction of biology, economics, politics, ideology; emphasis on suffrage movement, second-wave feminist change. Same as 131:172.

16A:174 Gender and Society in the U.S. 1940-Present 3 s.h.
Same as 131:174.

16A:175 Gender and the Law 3 s.h.
Same as 091:252.

16A:182 Black Metropolis: Twentieth Century 3 s.h.
Black popular culture and the African American urban experience. Same as 129:184.

16A:185 Themes in African American History 3 s.h.
Same as 129:184.

16A:188 African American History 1865-Present 3 s.h.
African American history since Reconstruction; survey of African American politics and society from Reconstruction to present. Same as 129:187.

16A:189 African American History since Reconstruction 3 s.h.

European History

16E:101 Ancient Egypt and the Ancient Near East 3 s.h.
Same as 20E:101.

16E:102 Barbarians in the Ancient World 3 s.h.
Same as 20E:102.

16E:103 Ancient Slavery and Modern Ideology 3 s.h.
Same as 20E:101.

16E:104 The World of Ancient Greece 3 s.h.
Same as 20E:105.

16E:105 Women in the Ancient World 3 s.h.
Same as 20E:105.

16E:106 Warfare in Ancient Mediterranean Society 3 s.h.
Same as 20E:106.

16E:107 The Hellenistic World and Rome 3 s.h.
Social, economic, political, intellectual history of Greco-Roman world, from fourth century B.C.E. to Justinian's reign. GE: foreign civilization and culture.

16E:108 Rise of the Roman Empire 264 BCE-14 CE 3 s.h.

16E:110 Medieval Civilization 3 s.h.
Europe from decline of Roman empire to Renaissance, cultural, political, economic foundations of Western civilization. GE: foreign civilization and culture. Same as 162:110.

16E:111 Medieval Intellectual History 300-1150 3 s.h.
Philosophy, art, literature, religious culture of Europe from waning of classical intellectual modes of culture in late antiquity, to their recovery in 12th century.

16E:112 Medieval Intellectual History 1150-1500 3 s.h.
European philosophy, religion, literature, art from 12th century rise of scholasticism; their transformation in period of Copernicus, Luther.

16E:113 Economic and Social History of Medieval Europe 3 s.h.
Changes in western Europe from 300 to 1500 A.D.; feudalism, manorialism, revival of towns, heresy, women, monasticism, agricultural and commercial revolutions, Black Death. GE: foreign civilization and culture.
The College of Liberal Arts and Sciences has long recognized that research and learning cannot always be contained within one discipline and that interactions between experts in different disciplines benefit researchers and students alike. One locus of interdisciplinary activity in the college is the Division of Interdisciplinary Programs. The division provides a structure that facilitates teaching, research, and service that cut across established boundaries. The division provides an administrative umbrella for several of the college’s programs. The Program in Literature, Science, and the Arts, the Interdepartmental Studies Program, and the Leisure Studies Program offer undergraduate majors. The Aging Studies, American Indian and Native Studies, Medieval Studies, Museum Studies, and Sexuality Studies Programs offer certificates and, in some cases, minors. The Center for the Book offers a graduate certificate and courses that undergraduates may choose as electives.

Located in the Jefferson Building, the Division of Interdisciplinary Programs provides a home for its constituent programs and centralizes administrative activities. The division home facilitates access to academic advising for students and administrative support for faculty members.

**INTERDEPARTMENTAL STUDIES**

**Director of Interdisciplinary Programs:**
Helena Dettmer

**Coordinator:** Kathleen Winkelhake

**Undergraduate degree:** B.A. in Interdepartmental Studies

**Web site:** [http://www.uiowa.edu/~interdep/](http://www.uiowa.edu/~interdep/)

The Interdepartmental Studies Program (ISP) offers a Bachelor of Arts designed to provide alternatives in planning academic programs outside traditional undergraduate majors. Since this is a major that includes advanced-level course work from a variety of departments, students are responsible for planning their own area of intellectual focus with the help of the interdepartmental studies adviser.

Students in interdepartmental studies develop creative emphases that draw upon several departments and integrate varied approaches to a particular topic. A few examples of interdepartmental programs are aging studies, technical writing, family studies, and urban studies.

Course work toward a certificate in aging studies, American Indian and native studies, medieval studies, museum studies, or sexuality studies might evolve into a major in interdepartmental studies. Course work in an area that has no undergraduate major, certificate, or minor, such as book studies, also could provide a concentration leading to a major in interdepartmental studies.

Programs that are covered by existing departmental majors are not appropriate for the ISP major. In all cases, careful and timely planning is essential.

**Plan of Study**

Students are required to submit a plan of study for approval before declaring an interdepartmental studies major. Students should consult promptly with the interdepartmental studies adviser to discuss an appropriate individualized program for their academic goals.

The adviser can explain the plan of study review process. The earlier in a student’s academic career a plan of study is submitted and approved, the more effective the student’s program will be.

Students working on a plan of study enroll in 145:001 Orientation to Interdepartmental Studies to prepare their plans.

Because the ISP major by definition allows for individualized academic planning, students are encouraged to apply for the program before or during the junior year.

**GUIDELINES**

Each plan of study submitted for approval must include:

- an essay no more than five pages long that includes a clear statement of the area of intellectual focus; the reasons for preferring the ISP to any departmental program; a concrete discussion of how the advanced courses relate to each other, to personal interest, and to the central focus of the plan of study; and a description of academic goals for the bachelor’s degree; and
- a list of advanced-level course work already completed and of advanced-level course work planned for all remaining semesters.

Each plan of study is approved by a committee that may include the ISP coordinator and the faculty advisory committee. Reviews are held as needed.

If the committee does not grant approval, the plan of study may be returned to the student for revisions and resubmission at the next committee meeting. In some cases, the student may be referred to an appropriate departmental major.

Students are required to take the courses approved in the plan of study. A limited number of substitutions may be allowed, but only if they are clearly consistent with the area of intellectual focus in the approved plan of study and only if they are approved in advance by the ISP adviser. Unauthorized substitutions may be designated as elective course work.

Significant changes in the focus of a student’s plan of study require the submission and approval of a revised plan of study. The student’s academic adviser determines whether changes warrant a revised plan.

Forms and guidelines for preparing the plan of study are available from the interdepartmental studies adviser.

**Bachelor of Arts**

The Bachelor of Arts in interdepartmental studies requires a total of at least 120 s.h., including the 36 s.h. of advanced course work specified in the plan of study. Students must complete a minimum of 30 s.h. after entering the program, including 15 s.h. in advanced-level course work included in the plan of study.

Having approval for the plan of study before embarking on their final two semesters ensures that students are truly planning ahead for a senior year. Hours taken during the semester in
which the plan of study is approved are not counted as part of the final 30 s.h.

Grade-Point Average
Students must achieve a g.p.a. of at least 2.00 in all college work attempted, all college work undertaken at The University of Iowa, and all advanced course work attempted.

General Education Program
Students must complete the College of Liberal Arts and Sciences General Education Program, including four semesters of college-level foreign language or the equivalent. (See the College of Liberal Arts and Sciences web site for specific information.

Course Work for the Plan of Study
Students must complete at The University of Iowa at least 36 s.h. of advanced course work approved as the formal plan of study. Advanced courses are those numbered 100 and above. No more than 18 s.h. of advanced course work from any one department can be counted toward this requirement. However, students who earn more than 18 s.h. in advanced course work from one department may count these as elective hours and apply them toward the 120 s.h. needed for graduation.

All courses numbered with the prefix 007 (College of Education) are considered to be in one department. All courses numbered with the prefix 006 (Tippie College of Business) are considered to be in one department, except 06E (economics), which may be considered a separate unit for purposes of the plan of study.

Courses taken to complete the General Education Program cannot be counted toward completion of the advanced course work requirement.

The pass/nonpass grading option is not available for the 36 s.h. of advanced course work required for the degree, but it may be used for advanced course work taken as elective credit beyond the 36 s.h.

Some study abroad advanced courses are considered residential work for the purposes of ISP requirements and college residence requirements. Students should check in advance with the ISP academic adviser.

All College of Liberal Arts and Sciences policies regarding residence, pass/nonpass, satisfactory/fail, and academic standards apply to ISP students.

Four-Year Graduation Plan
The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s Four-Year Graduation Plan. (Courses in the major are those required to complete the major.)

Before the fifth semester begins: at least one-half of the semester hours required for graduation

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

Before the eighth semester begins: a total of at least nine courses in the plan of study

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

Honors
 ISP students qualify for membership in the University Honors Program by maintaining a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information). Graduating with honors usually includes the successful completion of the honors requirements in a particular department or program.

ISP students should initiate inquiries about graduating with honors by contacting the ISP coordinator. Students are encouraged to inquire early in their junior year to allow time for foundation course work. The director of the University Honors Program can offer suggestions for contacting a supervising faculty member or committee from one or several appropriate departments. Because the ISP exists outside traditional departmental structures, a special form for approval of an honors project must be filed with the ISP coordinator and the director of the honors program.

Double Major
Interdepartmental studies students may earn a second major. No more than 6 s.h. of course work may be applied toward both majors. The focus represented by each major should be distinct and separate.

Simultaneous Degrees
Interdepartmental studies students may earn a second degree (see “Simultaneous Degrees” in the CLAS Student Academic Handbook).

Certificates
Interdepartmental studies students may earn certificates in other programs, departments, or colleges. The same course may be used to meet the requirements of both the major in interdepartmental studies and the certificate program.

Minor
The Interdepartmental Studies Program does not offer a minor. Interdepartmental studies students may earn minors in other programs, departments, or colleges. Courses used to meet the requirements of a minor may not be used to complete the major in interdepartmental studies.

Career Considerations
Since the B.A. in interdepartmental studies affords opportunities outside the traditional degree pattern, students must create programs of study that meet their individual educational and career objectives. Those who plan to seek employment immediately following graduation should familiarize themselves with the educational background and qualifications required by employers and should include appropriate courses in their programs of study.

Students preparing for advanced study should become familiar with the admissions requirements of graduate or professional schools in which they are interested. The earlier students decide on pursuing graduate or professional study, the easier it is for them to complete any necessary prerequisites.

Courses

145:001 Orientation to Interdepartmental Studies 0 s.h.
Group tutorial to students developing a plan of study for the interdepartmental studies major.

145:115 Interdisciplinary Audiences and Writing Across the Curriculum 3 s.h.
Current debates in international studies, health sciences, and the fine and performing arts; experience crafting brochures, editorials, grant proposals, essays.

145:198 Independent Study arr.
Individual study of issues or topics related to a specific interdepartmental focus chosen by the student.

145:199 Interdepartmental Studies Practicum arr.
Opportunity to relate a student’s chosen area of study to practical application.

LEISURE STUDIES

Director of Interdisciplinary Programs: Helena Dettmer
Academic coordinator: Kenneth Mobity

Professor emeritus: John A. Neshit
Adjunct instructors: Wayne Fett, David Gould, Michael Moran, Kathleen Winkelhake

Undergraduate degree: B.S. in Leisure Studies
Undergraduate nondegree program: minor in Leisure Studies
Graduate degree: M.A. in Leisure Studies

Web site: http://www.uis.edu/~leisure

Leisure plays an important role in all of our lives. The Leisure Studies Program contributes to the education of students in the College of Liberal Arts and Sciences by providing opportunities to study the phenomenon of leisure. In courses offered by leisure studies, students learn how to use their unobligated—or free—time to enhance the quality of their lives. The program also provides professional preparation for careers in the expanding fields of therapeutic recreation and recreational sport management.

The Leisure Studies Program offers courses that students may use to complete the General Education Program, including courses approved in the humanities area and in the social sciences area.

Leisure Studies

Undergraduate nondegree program:

Interdisciplinary Studies Practicum: 3 s.h.
Across the Curriculum 3 s.h.

Comprehensive Examination: 3 s.h.

Inquiries must be made in the Division of Interdisciplinary Programs.
The undergraduate and graduate programs offered in leisure studies prepare professionals to work in community, commercial, campus, and therapeutic recreation settings. The populations served by recreation professionals include the general public; students, colleges, and universities; and persons with disabilities or chronic conditions.

### Undergraduate Program

#### Bachelor of Science

The undergraduate major leads to a Bachelor of Science in Leisure Studies with an emphasis in therapeutic recreation.

Therapeutic recreation (TR) is a rapidly growing, health-oriented field in recreation and leisure services professions. It involves the use of recreation services to improve or maintain the physical, mental, emotional, and/or social functioning of persons with disabilities and/or special needs. Therapeutic recreation also helps individuals pursue meaningful lifestyles. Graduates are eligible to sit for the national certification examination in therapeutic recreation. Typically, graduates find employment in clinical or community settings.

Comprehensive therapeutic recreation services involve a continuum of care, including treatment that uses activities to remediate or rehabilitate functional disabilities; leisure education that uses instruction to help individuals acquire skills, knowledge, and attitudes that facilitate an independent lifestyle and avocational competence; and recreation that uses activities to enhance health, growth, development, and independence through intrinsically rewarding leisure behavior.

Populations most commonly served by certified therapeutic recreation specialists include the physically, mentally, or emotionally disabled; mentally delayed; incarcerated; chemically dependent; or socially disadvantaged older adults. Therapeutic recreation professionals are commonly employed in settings such as long-term health care facilities, community recreation centers, state and community mental health institutions, general medical hospitals, physical rehabilitation centers, special recreation districts, correctional facilities, senior citizens’ community-based programs, facilities for the mentally delayed, facilities for the emotionally disturbed, and substance-abuse programs.

The U.S. Department of Labor’s Bureau of Labor Statistics recently projected that employment in the field of therapeutic recreation is expected to grow faster than average. This growth is caused by the expansion of physical and psychiatric rehabilitation and services in long-term care settings, including nursing homes, retirement communities, community-based therapeutic recreation, and adult day care programs.

Students interested in leisure studies often begin by taking one of the program’s courses approved for general education. Students can indicate their interest in leisure studies when they are admitted to The University of Iowa or any time after that, but application and admission to the major is required. To be admitted to the therapeutic recreation emphasis, students must complete a minimum of 24 s.h. at The University of Iowa, including the following.

All of these:  
027:053 Human Anatomy 3 s.h.  
031:001 Elementary Psychology (or an equivalent or higher-level course addressing the same content areas) 3 s.h.

One of these:  
034:001 Introduction to Sociology: Principles 3-4 s.h.  
034:020 Principles of Social Psychology 3-4 s.h.

Students must have a g.p.a. of at least 2.50 for all University of Iowa course work and a cumulative g.p.a. of at least 2.50.

Transfer students must meet the same requirements (including the same sociology, statistics, anatomy, and psychology courses), except that they must have completed a minimum of 12 s.h. at The University of Iowa.

Students who have a University of Iowa or cumulative g.p.a. lower than 2.50 may apply under an exceptional admission policy.

Admission forms are available online at the Leisure Studies Program web site and at the Division of Interdisciplinary Programs office. They must be completed and submitted for consideration to the department’s therapeutic recreation admissions committee by October 15 for admission the following spring semester or by March 15 for consideration for admission the following fall semester. Once admitted, students should plan on a course of study of about two years.

In addition to the courses required for admission to the program, students must complete the following course work.

#### Therapeutic Recreation Foundation

The following courses are required (22 s.h.).

169:060 Leisure in Contemporary Society 3 s.h.  
169:061 Recreation Leadership and Programming 4 s.h.  
169:150 Recreation Administration 3 s.h.  
169:160 Introduction to Therapeutic Recreation 3 s.h.  
169:162 Therapeutic Recreation: Clientele 3 s.h.  
169:163 Concepts and Issues in Therapeutic Recreation 3 s.h.  
169:164 Therapeutic Recreation: Rehabilitation 3 s.h.

#### Therapeutic Recreation Electives

Students must complete 18 s.h. of electives chosen from these.

031:063 Abnormal Psychology: Health Professions 3 s.h. or 031:163 Abnormal Psychology 3 s.h.  
027:053 Human Anatomy 3 s.h.  
096:030 Human Development and Behavior 3 s.h.

Courses in human services (i.e., aging studies, psychology, sociology, social work, special education) 9 s.h.

#### Internship

Students must complete both of the following courses (13 s.h.).

169:190 Preinternship Seminar 1 s.h.  
169:191 Internship I 12 s.h.

### Four-Year Graduation Plan

The Four-Year Graduation Plan is not available for the B.S. in leisure studies. Students are encouraged to work with their advisers to develop an individual graduation plan.

### Honors

The honors program is designed for superior students. It gives participants some research experience and a perspective on some aspects of graduate study. To be eligible for honors, students must maintain a cumulative University of Iowa g.p.a. of at least 3.33. Application forms for the honors program are available at the Leisure Studies Program office.

To qualify for a degree with honors in leisure studies, students must successfully complete 169:194 Honors Readings and 169:195 Honors Problems, for which they must complete a reading or research project under the supervision of a departmental faculty member and write a paper summarizing the project’s results. Honor students also must maintain a cumulative University of Iowa g.p.a. of at least 3.33 throughout the rest of their degree work.

Contact the University Honors Program for more information about honors study at Iowa.

### Minor

Students who wish to minor in leisure studies must complete at least 15 s.h. in the department’s curriculum with a g.p.a. of 2.00. Of the 15 s.h., 12 must be taken in advanced [100-level] courses at The University of Iowa. Students choose courses according to their interests and the recommendations of the leisure studies coordinator. No courses accepted toward the minor may be taken pass/nonpass.

### Graduate Program

Undergraduate preparation in leisure studies is not required for successful completion of the graduate program; indeed, students from diverse backgrounds are encouraged to apply. However, students may need to fulfill prerequisites specific to their specialization areas.

### Master of Arts

The Leisure Studies Program offers a Master of Arts with or without thesis in two specialization areas: therapeutic recreation, and leisure and recreational sport management. The degree is awarded upon completion of at least 33 s.h. of graduate course work including thesis, or 36 s.h. without thesis. All master’s students must...
complete a group of core courses supplemented with work in their specialization areas.

CORE REQUIREMENTS

All master's students must take the following courses.

- 07P:143 Introduction to Statistical Methods 3 s.h.
- 169:200 Historical and Philosophical Perspectives on Leisure 3 s.h.
- 169:301 Research Colloquium in Leisure Studies 3 s.h.
- A research methods course (quantitative or qualitative) 3 s.h.

Specialization Areas

THERAPEUTIC RECREATION

The therapeutic recreation relates to development and administration of programs that serve persons with mental or physical disabilities, the emotionally disturbed, and aged persons in both institutional and community settings. The program, directed toward understanding recreation's role in a comprehensive rehabilitation process, prepares students to work with a broad range of disability areas in either clinical or community settings. Students may develop specialization areas by taking related area courses. Emphasis is on applying research techniques and skills to solve problems in practical settings.

In addition to the core requirements (above), students should complete the following.

- 169:163 Concepts and Issues in Therapeutic Recreation 3 s.h.
- 169:262 Procedures in Therapeutic Recreation 3 s.h.
- 169:264 Therapeutic Recreation: Services 3 s.h.

Each student also chooses a cognate area of 6-9 s.h. Cognate areas include counseling and group processes, disabilities, management, and aging. Nonthesis students take an additional 6 s.h. of electives; thesis students complete 6 s.h. of thesis registration.

Therapeutic recreation students must complete a practicum in order to sit for the National Certification Examination.

LEISURE AND RECREATIONAL SPORT MANAGEMENT

The master's degree with an emphasis in recreational sport management prepares students for positions in public and private recreation and sport management. Students typically find employment in community or municipal budgeting, program planning, and leisure pursuits.

In addition to the core requirements (above), students should complete the following.

- 169:151 Risk Management 3 s.h.
- 169:250 Seminar in Recreation Management 3 s.h.
- 169:252 Economics and Financing 3 s.h.

Each student also chooses a cognate area of 6-9 s.h. Cognate areas include business, communications, or cultural studies. Nonthesis students take an additional 6 s.h. of electives; thesis students complete 6 s.h. of thesis registration.

Internships

Internships, available in several areas, are strongly recommended for students specializing in therapeutic recreation or in recreational sport management.

Certification Examination

Master's students specializing in therapeutic recreation or in leisure and recreational sport management are eligible to take professional certification examinations. They should consult a graduate adviser for guidance toward professional certification.

Assistantships

A limited number of teaching assistantships are available; applications should be made directly to the program coordinator. Teaching assistants supervise practicum students or support general education courses offered by the Leisure Studies Program.

Courses

- 169:029 First-Year Seminar 1-2 s.h.
  - Small discussion class taught by a faculty member; topics chosen by instructor may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisites: first- or second-semester standing.

- 169:060 Leisure in Contemporary Society 3 s.h.
  - Basic philosophical, historical, scientific foundations and developments; function, settings of organized recreation.

- 169:061 Recreation Leadership and Programming 4 s.h.
  - Leadership principles, techniques; programming techniques.

- 169:070 Perspectives on Leisure and Play 3 s.h.
  - Relationships between leisure and economics, sociology, other social sciences; effect of leisure on individual and group behavior; antecedents, motives, consequences of leisure behavior. GE: social sciences.

- 169:072 Leisure and the Liberal Arts 3 s.h.
  - Integration of the ideal of a liberal education with worthy, meaningful use of free time in contemporary society; classic writings in the humanities. GE: humanities.

- 169:075 The Politics of Women's Leisure 3 s.h.
  - Politics of women's leisure viewed through sociological concepts of agency and constraint and theoretical perspectives of hegemony and feminine theories; gender differences in leisure choices, politics of housework, mothering and childlessness, fitness and sport, beauty and appearance, emotional labor and relationships, media and popular culture as vehicles for discussion and analysis; how race, sexual preference, age, and socioeconomic status affect women's attitudes and choice of work and leisure pursuits.

- 169:076 Culture and Community in Human Services 3 s.h.
  - Roles played by culture and community in human services; aspects of culture and community-based perspectives, including race, ethnicity, gender, class, sexuality, religion; disproportionate influence that particular cultures and communities exert on the structures of society.

- 169:102 Introduction to Museology 3 s.h.

- 169:105 Physical Education: Disabilities 3 s.h.
  - Prerequisite: 027:053.

- 169:108 Basic Aspects of Aging 3 s.h.
  - Social, psychological, and biological aspects of aging; focus on demographics of aging, health, economic issues, primary relationships, social services. Same as 042:108, 096:108, 153:108.

- 169:112 Workshop: Leisure Studies 1-4 s.h.

- 169:128 Environmental Issues in Recreation 1-4 s.h.
  - Issues related to outdoor recreation behavior; management; issues vis-à-vis ecosystem concept.

- 169:140 Health for Living 3 s.h.
  - Personal health strategies; focus on disease prevention, wellness. GE: social sciences.

- 169:142 Health Promotion in the Workplace Setting 3 s.h.
  - Management and organizational theories; assessment, planning, implementation, and evaluation of clinical and workplace (targeted) health promotion programs.

- 169:146 Health Promotion for Older Adults 3 s.h.
  - Problems, strategic efforts toward long-term goal of health promotion; disease prevention; slowing the decline caused by chronic conditions to extend independent, rewarding lives. Same as 096:146, 153:146.

- 169:150 Recreation Administration 3 s.h.
  - Personnel, finance, budgets, liability, marketing.

- 169:151 Risk Management 3 s.h.
  - Legal knowledge necessary for effective management of sport, recreation, and physical activity programs, avoidance of legal problems; strategies for addressing issues such as right to participation, liability for injuries, risk management; legal statutes that govern sport, health, recreation organizations.

- 169:154 Recreation Sport Facility Management 3 s.h.
  - Personnel, program, financing, design, standards.

- 169:156 Design of Recreation Facilities 3 s.h.
  - Horticulture, floriculture, landscape design, agronomy, turf management; relation to planning and design of recreation and park areas and facilities.

- 169:157 Health Fitness Management 3 s.h.
  - Management, operation of private, hospital-based, and corporate fitness clubs.

- 169:158 Commercial Recreation Management 3 s.h.
  - Management skills for operating small commercial recreation complexes smoothly and profitably, entrepreneurship, new business formation, financial and risk management, inventory control, purchasing, marketing, governmental regulation. Prerequisites: 169:060 and 169:150.

- 169:160 Introduction to Therapeutic Recreation 3 s.h.
  - Recreation's role in rehabilitation; organization and development of programs, approaches to understanding patient behavior, adaptation of activities for disabilities, concepts of normalization and inclusion.

- 169:162 Therapeutic Recreation: Clientele 3 s.h.
  - Human growth and development, concomitant development of recreation and leisure identities; developmental patterns of special populations. Prerequisite: 169:160.

- 169:163 Concepts and Issues in Therapeutic Recreation 3 s.h.
  - Philosophical, ethical, professional, and theoretical issues in delivery of therapeutic recreation services; impact of legislation, standards of practice and professionalization, health care reform; application of research to practice and marketing. Prerequisite: 169:160.

- 169:164 Therapeutic Recreation: Rehabilitation 3 s.h.
  - Role of therapeutic recreation in total institutional and community rehabilitation efforts; cooperative role of therapeutic recreation in total therapies program. Prerequisite: 169:160.

- 169:168 Aging and Leisure 3 s.h.
  - Status of the elderly recreation participation in retirement issues, use of free time, and factors that support leisure activity; leisure services in long-term care. Same as 153:168.

- 169:173 Work and Leisure in American Culture 3 s.h.
  - Methods and insights of American studies and leisure studies applied to work/leisure relationship in American life; patterns and perceptions of work and leisure, leisure's share and potential, changing American values.

- 169:180 Practicum in Therapeutic Recreation 1 s.h.
  - Participation in a weekend respite care camp for people with varied disabilities and illnesses; hands-on care and provision of activities. Prerequisite: 169:160.

- 169:190 Internship I 1 s.h.
  - Practical field experience; direct leadership, program planning, administrative procedures. Prerequisites: 169:190 and consent of instructor.

- 169:192 Internship II 1 s.h.
  - Continuation of 169:191. Prerequisite: consent of instructor.

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169:193 Independent Study
Problem in a specific area. Prerequisite: consent of instructor.

169:194 Honors Readings
Prerequisite: consent of instructor.

169:195 Honors Problems
Prerequisite: consent of instructor.

169:200 Historical and Philosophical Perspectives on Leisure
3 s.h.
Development of attitudes toward health, leisure, and sport; emerging program patterns; current issues.

169:205 Research Methods and Leisure Behavior
3 s.h.
The scientific process: research designs for experiments and surveys; questionnaire construction; sampling theory; basic data analysis.

169:250 Seminar in Recreation Management
3 s.h.
The sport/leisure industry and product characteristics of nonprofit, private/commercial, and public organizations; participants and spectator consumer behavior, fundamentals of market research in sport/leisure organizations.

169:252 Economics and Financing
3 s.h.
Economic issues for sport/leisure services in nonprofit, private/commercial, and public sectors: strategic financial analysis for the financial manager; principles, issues in financing sport/leisure organizations.

169:262 Procedures in Therapeutic Recreation
3 s.h.
Application of research principles to daily therapeutic recreation practice and program administration. Prerequisite: consent of instructor.

169:264 Therapeutic Recreation: Services
3 s.h.
Initiation, improvement, expansion of therapeutic recreation service for disabled persons; practice in program evaluation procedures; parallel practices in related fields. Prerequisite: consent of instructor.

169:277 Leisure in U.S. Culture
3 s.h.
Leisure as cultural form; relationship to ideology and practice in economics, politics, education, the family, the media.

169:290 Graduate Internship
Prerequisite: consent of instructor.

169:291 Problems
Prerequisite: consent of instructor.

169:290 Graduate Research Problems
Prerequisite: consent of instructor.

169:301 Research Colloquium in Leisure Studies
3 s.h.
Current faculty research, individual work with faculty members on projects that will be presented in class.

1-6 s.h.
Repeatable. Prerequisite: consent of instructor.

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LITERATURE, SCIENCE, AND THE ARTS

Director of Interdisciplinary Programs: Helena Dettmer
Professors: David Depew (Rhetorics of Inquiry/Communication Studies/Literature, Science, and the Arts), Benjamin Hunnicutt (Leisure Studies/Literature, Science, and the Arts), Jon Ringen
Associate professor: Steve Thunder-McGuire (Art and Art History/Curriculum and Instruction/Literature, Science, and the Arts)
Adjunct assistant professors: David Bullwinkle, Thomas Dean, Emmanuel Enkewechi
Visiting assistant professor: Amy Petersen
Adjunct instructor: Christine Peterson Brus
Lecturers: Meredith Alexander (Theatre Arts/Literature, Science, and the Arts/Sexuality Studies), Jack Johnson (Literature, Science, and the Arts/French and Italian)
Undergraduate degree: B.A. in Literature, Science, and the Arts
Web site: http://www.uiowa.edu/~lsa

The Interdisciplinary Program in Literature, Science, and the Arts (LSA) enables students to pursue individual interests while exploring the full range of liberal arts and sciences disciplines. LSA majors design individualized plans of study that relate personal goals and academic interests to broad issues in the humanities, sciences, arts, and professions. One student might study ethics related to business, law, and medicine; another, relations among science, society, and values; yet another, the arts within a particular cultural context.

The LSA major offers a Bachelor of Arts degree broader than that permitted by study in a single subject. Topics cross, reflect upon, and challenge disciplinary boundaries. Through writing, analytical thinking, and discussion, students develop critical appreciation of diverse perspectives.

Central to the program are team-taught interdisciplinary seminars that challenge students to consider ideas from diverse points of view. The seminars are small-group round-table discussions led by two or more faculty members representing different departments and disciplinary perspectives. Together, faculty members and students examine values and judgments rooted in the liberal arts and sciences disciplines.

LSA courses are open to undergraduates from any department or college. Courses numbered 100 and below are designed as introductions to interdisciplinary studies and are open to all students who have completed the rhetoric requirement. Courses numbered above 100 are designed for juniors, seniors, and graduate students; all other students must consult the instructor or the LSA office before enrolling.

Frequent consultations with an adviser and care in preparing the required statement of purpose ensure that students shape the major to suit individual goals, including preparation for professional careers or further study in graduate school.

Bachelor of Arts
Specific requirements for the B.A. with a major in literature, science, and the arts are as follows. A plan of study must include the following 24 s.h. of course work.

LSA courses 12 s.h.
Natural science and social science courses 12 s.h.

Students also must complete at least 30 s.h. of course work chosen from the following four areas. All areas must be represented; students choose 12 s.h. from each of two areas and 3 s.h. from each of the other two areas. Up to 15 s.h. of advanced course work used to complete the General Education Program may be applied to requirements of the major.

Philosophy, religion, history
Literature (literature courses taught in a language other than English may be included; courses with the 08G prefix may not be included)
Fine arts
Foreign language students may not include courses they use to complete the foreign language component of the General Education Program

Students fulfilling the LSA foreign language requirement with 3 s.h. can use a course in English, civilization, or literature taught in English by the department of the student’s language of expertise. Students fulfilling the requirement with 12 s.h. cannot use courses taught in English.

LSA majors also are required to submit a statement of purpose describing their goals by their second semester as majors. Information on writing the statement of purpose and descriptions of LSA courses for the current and coming semesters are available at the program’s web site.

Students must complete a minimum of 12 s.h. of LSA courses and at least 12 s.h. of other major courses at The University of Iowa.

Students considering an LSA major should consult with the program office before the end of their sophomore year.

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

Note: No course may satisfy more than one major requirement. Students prepare an individualized plan of study consisting of at least 14 courses, including one in foreign language beyond fourth-semester competency, so some students may need to do foreign language work early.

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

Before the fifth semester begins: a plan of study, language competency in the language of choice, and at least one-half of the semester hours required for graduation

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

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

Honors
Superior students who undertake a further program of independent study may earn the Bachelor of Arts with honors. To be admitted as candidates for a degree with honors, students must have the endorsement of the director of the Program in Literature, Science, and the Arts and must meet the requirements for the University Honors Program, which include maintaining a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information). Honors students submit an honors project to a faculty committee.

Courses
033:005 Rhetoric of Scientific Inquiry 4 s.h.
Theories of what it is to act and know, of what intelligence might be in animals, humans, machines; perspectives from philosophy, psychology. Prerequisite: junior or senior standing or consent of instructor. Same as 031:174.

031:145 Literature, Music, and Aesthetics 3 s.h.
Interdisciplinary connections between literature and music; specific cultural, ideological contexts. Same as 025:137.

031:146 Literature and the Visual Arts 3 s.h.
The rules of meaning, values, and cultural expression in selected works of literature and the visual arts from the Enlightenment to Modernism; interrelationship of poetry, essays, novellas, and short stories with paintings, prints, sculpture, and architecture.

031:147 Nature vs. Nurture: Theory to Practice 3 s.h.
Sex differences in cognitive abilities explored through psychosocial versus biological perspective; impact on populations, especially women in science, math, engineering, technology.

031:151 Individuals and Institutions 3 s.h.
Relationships between individuals and institutions viewed through outstanding works of literature, social science, and law.

031:152 Values in the Contemporary World 3 s.h.
Modern problems in definition and choice of values; writings of contemporary ethical theorists, novelists. Same as 032:149.

031:153 Hard Cases: Science Policy and Values 3 s.h.
Major issues in practical ethics through difficult case studies; fields such as law, medicine, business, politics; readings in classic authors; recent contributions from several disciplines. Same as 091:153.

031:154 Human Nature and the Impact of Science 3 s.h.
Relationships among scientific, humanistic, social, religious thought. GE: humanities.

031:155 Risk Technology and the Public 3 s.h.
Place and criticism of risks in society; quantitative risk assessments and their comprehension by the public; rules of experts, public interests; readings from literature, philosophy, social science; case studies.

031:161 The Arts in Performance 3 s.h.
Performing arts in human experience; creativity in different performance media, cultures, historical contexts. GE: fine arts or humanities.

031:175 Art, Law and Ethics 3 s.h.
How law and ethics apply to individuals and institutions concerned with the visual arts. Same as 01H:182, 024:161, 091:192.

031:180 Special Projects arr.

031:191 Independent Study for Honors arr.

Director:
Undergraduate degree: B.A. in International Studies
Undergraduate nondegree program: minor in International Studies
Web site: http://www.uiowa.edu/~intl/studies

International Programs offers a major in international studies leading to a Bachelor of Arts degree from the College of Liberal Arts and Sciences. The major is an interdisciplinary program of study offered with either a geographic or thematic emphasis. It prepares students for careers in business, government, international development agencies, nongovernmental organizations, philanthropic agencies, and the arts. It also is excellent preparation for graduate training in the social sciences, the arts, law, business, journalism, international affairs, and area studies.

International Studies is not simply the study of diplomacy and relations among states. The program of study requires all students to integrate theoretical knowledge about broad global processes and the methods used to study them, with in-depth examination of a particular region of the world or a major theme in international studies. It affords students the opportunity to integrate the study of history, politics, economics, expressive arts, culture, beliefs, and social systems. The curriculum of the major is designed to help students learn to appreciate foreign cultures, focus on themes of global significance, and master varied disciplinary approaches used to study international issues. For students interested in pursuing a double major, the international studies major complements a wide range of academic degree programs.

Bachelor of Arts

The international studies major is flexible, drawing on courses across the humanities and social sciences. All students majoring in international studies are mentored by a faculty member who specializes in their geographic or thematic emphasis area. The Academic Advising Center provides official advising for all international studies majors. Students must work closely with their faculty mentors to coordinate their program of study and fulfill the requirements for the major.

The Bachelor of Arts in international studies requires 36 s.h. of course work; at least 12 of the 36 s.h. must be earned in upper-level course work. A foundation course (3 s.h.) and two gateway courses (6 s.h.) introduce students to the major issues in international studies and the varied methods used to examine them. Foreign language proficiency is vital for participating in diverse societies and cultures, so foreign language study beyond the General Education requirements is required. Students select a geographic or thematic emphasis area or develop one in consultation with their faculty adviser. Each student must complete a senior project related to his or her focus of study. Six semester hours of international studies electives outside the student’s emphasis area provide comparative perspectives.

The program encourages study abroad. See “Study Abroad Opportunity” below, for more information.

DISTRIBUTION REQUIREMENTS

Students majoring in international studies may not apply more than 12 s.h. applied to another major, minor, or certificate to the requirements for the international studies major.

Students majoring in international studies must undertake course work in at least four different departments.

Students must complete at least 12 s.h. of upper-level course work: 6 s.h. in the emphasis area, 3 s.h. in the elective area, and the senior project.

FOUNDATION COURSE

Each student chooses at least one of the following courses, ordinarily as the first course in the major. Each provides an overview of global issues and introduces a disciplinary approach to global topics, laying a foundation for continuing study.

Issues in International Studies classes
1 s.h. courses numbered 187-002, 187-003, and 187-004 are offered every semester by faculty members affiliated with the international studies major. Each class provides a focused introduction
to a specific international studies topic or approach. Students who choose issues in International Studies as their foundation course must complete three classes (total of 3 s.h.):

- 06E:125 International Economics 3 s.h.
- 030:060 Introduction to International Relations 3 s.h.
- 036:086 Global Media Studies 3 s.h.

Students also must complete 6 s.h. of ungraded credit under the Foreign Language Requirement. Students may be required to complete two semesters, or the equivalent, of a second foreign language at any level. This credit earned while studying abroad is counted toward the international studies major. Credit earned while studying abroad is counted toward the requirements for the major, as appropriate. All international studies majors who study abroad in an approved program receive a $1,000 scholarship from International Programs in addition to other financial aid and scholarships for which they are eligible. In order to receive this scholarship, students must declare and have completed at least 12 s.h. of course work toward the international studies major.

It is important to plan ahead for study abroad. Students should meet with an adviser in the Office for Study Abroad shortly after choosing their geographic or thematic emphasis for help in selecting an appropriate study abroad program. Students planning to earn a bachelor's degree in four years must schedule study abroad advising appointments as outlined under “Four-Year Graduation Plan.”

Transfer Credit

Transfer course work equivalent to University of Iowa course work can be accepted toward the major, but at least 15 s.h. of course work for the major must be earned at The University of Iowa.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete in order to stay on the University's Four-Year Graduation Plan.

Note: Students who intend to study abroad in their junior year should schedule an appointment during their fourth semester to meet with an adviser from the Office for Study Abroad. Those who intend to study abroad in their senior year should schedule an appointment during their sixth semester to meet with an adviser from the Office for Study Abroad.

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

Before the fifth semester begins: at least two courses in the major (a foundation course and one gateway course) and at least one-half of the semester hours required for graduation.

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

Before the eighth semester begins: at least nine courses in the major.

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

Honors

Students may earn a B.A. with honors in international studies. The option is available to students with a cumulative University of Iowa g.p.a. of at least 3.33 and a g.p.a. of at least 3.30
in international studies. To graduate with honors, students are required to complete a minimum of 39 s.h., including three courses (9 s.h.) in a second emphasis area (this takes the place of the 6 s.h. international studies elective requirement). Honors students must complete at least 15 s.h. in upper-level course work. At least 6 s.h. of the 39 s.h. required for the honors major must be earned in courses designated as honors courses. Students may enroll in honors courses offered by individual departments, or they may work with instructors to designate any approved international studies course as an honors course by adding additional writing requirements. Contact an international studies faculty mentor or an international studies adviser at the Academic Advising Center. Contact the University Honors Program for more information about honors study at Iowa.

Minor

To earn a minor in international studies, students must complete 15 s.h. in courses approved by international studies. To preserve the minor’s interdisciplinary nature, students may not count toward the international studies minor more than 6 s.h. from courses used to complete another major, minor, or certificate. At least 12 s.h. applied to the minor must be earned in course work designated as upper-level by the department offering the course. Students are encouraged to include 187:001 in the minor.

Courses

187:001 International Studies Colloquium 1 s.h. Modules focusing on varied topics, taught by international studies faculty members.
187:002 Issues in International Studies 1 s.h. Modules focusing on varied topics, taught by international studies faculty members.
187:003 Issues in International Studies 1 s.h. Modules focusing on varied topics, taught by international studies faculty members.
187:004 Issues in International Studies 1 s.h. Modules focusing on varied topics, taught by international studies faculty members.
187:005 Making of the Modern Global System 3 s.h. Formation of the modern global system; capitalism, science and technology; representative government and nationalism, colonialism and decolonization; rise of these institutions in the West, response and adaptation by a nonwestern society.
187:006 International Analysis of Topics and Places 3 s.h. Analysis of international topics (e.g., population characteristics, religion, language and racial groups, world income, environment) using case-study approach.
187:090 International Studies News Colloquium 2 s.h.
187:099 Introduction to Russia, the Soviet Union, and its Successor States 3 s.h. Historical and cultural studies of the region’s societies, including current problems in economics, politics, ethnicity, religion, ecology, health, law, GE: foreign civilization and culture.
187:105 Independent Study in International Studies 1-3 s.h. Research on a topic of international significance.
187:142 Introduction to Caribbean Studies 3 s.h. Diversity and unity of Caribbean culture; geography, historic culture, Hispanic, Francophone, and Anglophone Caribbean texts. Same as 035:142.
187:150 Internetworks in International Development 3 s.h. The Internet and online development resources; technical background, accessibility impact; advanced skill development in Internet communication and authoring techniques; no previous knowledge required.
187:159 African Literature Today 3 s.h. Same as 008:159, 048:159.
187:175 Child Labor and International Human Rights 3 s.h. Complexity of child labor in global, regional, national, and local contexts; international human rights system, current programs and strategies for reducing or eliminating abusive child labor.
187:199 International Studies Senior Project 3 s.h.
187:210 International Programs Summer Institute for Teachers 3 s.h. Professional development workshop for teachers on what Iowans need to know about the rest of the world. Weeklong. Same as 075:210.

Undergraduate Program

Undergraduate majors prepare for careers in journalism and mass communication. Journalistic writing is the core of the professional program; visual communication also is an important focus. Graduates have used their preparation to work in areas such as newspapers, magazines, radio, television, online communications, public relations, publication design, photojournalism, and media research.

Majors are required to take both professional and conceptual courses offered by the school. The undergraduate program integrates development of professional skills with the study of historical, legal, cultural, and institutional roles of media in society.

The program also builds on the University’s commitment to the liberal arts and sciences, requiring that majors complete extensive academic work outside of the journalism school. Students earn the B.A. or B.S. degree.

The school is accredited by the Accrediting Council on Education in Journalism and Mass Communications.

Selective Admission

To preserve the quality of its programs, the School of Journalism and Mass Communication has a selective admission program. Students with a declared interest in journalism can be admitted to the major status in two ways. First-year students who enter the University with honors status in the College of Liberal Arts and Sciences, or as Presidential Scholars, Dean’s Scholars, or Daily Iowan Scholars, are eligible for major status upon enrollment in the University. Most students are classified as prejournalism students until they are admitted to major status.

To apply for admission to the program as majors, students must have taken or be taking two foundation courses, 019:090 and 019:091 (see “Premajor Foundation”), as well as all required rhetoric courses. Students may apply for admission to major status during the semester in which they will complete these requirements and also complete a total of at least 45 s.h. of course work overall. Students who qualify for the University Honors Program after their first semester may apply for admission to major status in the semester during which they will complete the premajor requirements and 30 s.h. of course work.

Applications and deadline information are available from the School of Journalism and Mass Communication office.

The primary criterion for admission to major status is overall academic performance. Other factors considered are a statement of interest submitted by the student, demonstrated writing ability, prior journalistic experience, and performance in journalism courses. The number of students accepted each semester depends on the number of students already in the program and available resources. The school reviews applications with the goal of admitting the most qualified students to the program.

Curriculum

Requirements for the major in Journalism have changed. Students who are admitted to the major on or after the first day of fall semester 2004, including students who are admitted to the College of Liberal Arts and Sciences in summer 2004, must complete the program described below. Students who entered the major before the first day of fall semester 2004 may choose to complete the old requirements, but they must complete all requirements and graduate by August 2008.

Majors complete a minimum of 35 s.h. and a maximum of 40 s.h. of journalism and mass communication courses in accordance with College of Liberal Arts and Sciences guidelines. Students must achieve a g.p.a. of at least 2.0 in courses in their major in order to graduate. Majors also must complete a second major or 24 s.h. in a second area of concentration.

The undergraduate program’s flexibility allows each major to develop an individual plan of study in consultation with a faculty adviser.

Required Courses

All majors must complete the following course work (minimum of 35 s.h., maximum of 40 s.h.).
BACHELOR OF ARTS

Students seeking a B.A. in journalism and mass communication must complete the journalism major requirements (35 s.h.) and must fulfill the school's second area of concentration requirement in one of two ways.

Option 1: complete a B.S. major in a natural, mathematical, or social science

Option 2: complete a 24 s.h. concentration of related courses in the social sciences (economics, geography, political science, psychology, or sociology) and/or the natural and mathematical sciences; and complete all the special math, research methods, statistics, computer science, and/or cognate science requirements necessary for the B.S. degree in the department in which the majority of second-area work is done.

Four-Year Graduation Plan

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

Note: With the exception of students admitted to the major directly upon their first enrollment in the University, students are admitted to the School of Journalism and Mass Communication with a g.p.a. of at least 2.00; 12 of the 15 s.h. must be taken in mass communication courses.

Honors

The University Honors Program gives students with outstanding academic records the opportunity to pursue honors credit in their fields or areas of individual interest under the guidance of a faculty member.

To graduate with honors in journalism and mass communication, a student must have a g.p.a. of at least 3.50 in the major and must be a member of the University Honors Program, which requires that students maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information). Honors students also must complete 019:191 Honors Project (3 s.h.) under the supervision of a faculty member. Course work may take the form of a thesis or a professional project, typically completed during the last semester of the senior year. Students are encouraged but not required to take 019:190 Honors Readings (1-3 s.h.) as preparation.

All majors with an overall g.p.a. of at least 3.33 are encouraged to take any journalism and mass communication course for honors credit and to make use of other honors opportunities in the School of Journalism and Mass Communication. See the school's web site or contact its honors adviser for more information.

National Honor Society

The School's chapter of Kappa Tau Alpha, the national society honoring scholarship in journalism and mass communication, was founded in 1936 and is named for former director Leslie G. Moeller. Students are considered for membership if their grade-point average places them in the top 10 percent of their class and they have completed at least five semesters of University work, including a minimum of 9 s.h. in journalism and mass communications skills courses. Contact the School's Kappa Tau Alpha adviser for more information.

Minor

To meet the requirements for a minor, students must complete at least 15 s.h. in journalism and mass communication with a g.p.a. of at least 2.00; 12 of the 15 s.h. must be taken in advanced courses at The University of Iowa (those numbered 019:100 or above). Students are encouraged to take one of the following courses.

Premajor Foundation

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>019:090</td>
<td>Social Scientific Foundations of Communication</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>019:091</td>
<td>Cultural and Historical Foundations of Communication</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Journalism Writing and Workshop Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>019:115</td>
<td>Journalistic Reporting and Writing</td>
<td>4 s.h.</td>
</tr>
<tr>
<td></td>
<td>Two advanced reporting and writing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>courses (019:120-019:125, 019:171)</td>
<td>8 s.h.</td>
</tr>
<tr>
<td></td>
<td>One workshop course (019:130-019:139, 019:172-019:174)</td>
<td>4 s.h.</td>
</tr>
<tr>
<td></td>
<td>An additional advanced reporting and writing or workshop course</td>
<td></td>
</tr>
</tbody>
</table>

Conceptual Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>019:140</td>
<td>Legal and Ethical Issues in Communication</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>An advanced conceptual course</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(019:141-019:169)</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Electives

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Course work chosen from undergraduate journalism and mass communication courses</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Additional Electives

Additional courses up to the maximum 40 s.h. (optional)

Second Area of Concentration

In addition to completing the College of Liberal Arts and Sciences General Education Program, every journalism major must complete a second area of concentration outside of journalism and mass communication. Study in the second area permits students to acquire a substantial body of knowledge, learn how another discipline views the world, and/or develop a companion set of skills to those in journalism and mass communication.

This concentration requirement may be fulfilled by completing a second major or by choosing 24 s.h. of related course work in one or more departments. Students who do not complete second majors must complete at least 15 of the 24 s.h. in advanced courses (in most departments, advanced courses are numbered 100 or higher). Students seeking a B.A. who complete a minor in business administration are credited with meeting the second area requirement. Course work in the second area must be arranged in consultation with the student's adviser; each student must have the adviser's written endorsement of the second area before graduation.

BACHELOR OF ARTS

Students seeking a B.A. in journalism and mass communication must complete the journalism major requirements (35 s.h.) and must fulfill the school's second area of concentration requirement in one of two ways.

Option 1: complete a full B.A. major in another department.

Option 2: complete a 24 s.h. concentration of related courses in one or more departments that offer B.A. degrees or complete a minor in business administration.

Additional courses up to the maximum 40 s.h. (optional)

Courses for the minor may not be taken pass/nonpass.
Transfer Students

Transfer students with a declared interest in journalism and mass communication are classified as premajors. They may apply for major status during the semester in which they will have completed at least 45 s.h. of course work at The University of Iowa and other institutions, including their rhetoric requirement and the two foundation courses—019:090 Social Scientific Foundations of Communication and 019:091 Cultural and Historical Foundations of Communication. Neither of these required foundation courses may be waived on the basis of work taken at other institutions.

The school may accept journalism transfer credits from other institutions for up to, but not more than, 7 s.h. for majors, or 3 s.h. for minors, of the total credit in journalism and mass communication that Iowa requires. Some journalism course work taken at another school may be used to fulfill elective and/or second area of concentration requirements. Any transfer credit intended to meet School of Journalism and Mass Communication requirements must be discussed with a journalism faculty adviser and approved by the head of undergraduate studies.

Graduate Programs

Master of Arts

The School of Journalism and Mass Communication offers a Master of Arts program with two separate emphases: professional journalism and mass communication.

Each emphasis requires 30 s.h. of approved course work and successful completion of a master's project or thesis. The specific requirements of each emphasis are listed below.

Professional Program in Journalism

This program is designed primarily for individuals who already have acquired basic journalistic skills and who seek to enhance their careers through specialized knowledge in a selected interest area. Each student creates an individualized focus area through courses chosen from inside and outside the school. Some examples include law, politics, business, medicine, science, the environment, urban planning, the arts, and issues of race and gender.

Building on conceptual and advanced skills course work, students complete their programs with a master's project of a professional nature, such as in-depth reporting, design, documentary photography, or applied research on a mass communication topic.

Students admitted to the program ordinarily have a background in some area of mass communication. This background may be obtained through professional experience, typically a minimum of one year, or through academic course work. Exceptional applicants without these qualifications may be accepted on the condition that they complete preparatory course work.

The following courses are required.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>019:225</td>
<td>Contemporary Problems in Journalism</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>019:140</td>
<td>Master's Research (thesis option)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>019:299</td>
<td>Master's Research (project)</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Mass Communication Emphasis

This program offers a specialization in the study of mass communication phenomena and emphasizes theory and methodology. It prepares students for doctoral studies under two basic options: successfully defending a thesis before a faculty committee, or passing a final examination administered by a faculty committee at the conclusion of the course work. Students may apply only for admission to the thesis option. The nonthesis option is available only upon the recommendation of the student's adviser.

Given the interdisciplinary nature of the field, students are expected to take courses outside the school. The nature and extent of this work is determined by students in consultation with their advisers. The course work should prepare students both theoretically and methodologically for either the final written examination or the completion of the thesis.

Students in the M.A. thesis program may petition the school's graduate committee for admission to the Ph.D. program after successfully completing at least 18 s.h. of their M.A. work.

The following courses are required.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>019:220</td>
<td>Master's Seminar (two semesters)</td>
<td>0 s.h.</td>
</tr>
<tr>
<td>019:221</td>
<td>Approaches to the Study of Communication: Issues and Concepts</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Doctor of Philosophy

The Ph.D. program emphasizes qualitative interdisciplinary inquiry into mass communication phenomena from cultural and historical perspectives. The program's substantive nature is defined by the scholarly interests of its faculty, which include investigations of historical, legal, economic, cultural, and social and cross-cultural aspects of communication, both verbal and visual.

The Ph.D. program is highly individualized. Drawing on the School of Journalism and Mass Communication as well as other academic units, each student develops a specific course of study that reflects his or her academic background, experience, professional goals, and intellectual preferences.

The Ph.D. requires 72 s.h. Students may transfer a maximum of 30 s.h. from their master's degree (professional skills courses cannot be included). The graduate committee must approve transfer credits.

The following courses are required.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>019:222</td>
<td>Approaches to the Study of Communication: Issues and Concepts</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>019:399</td>
<td>Dissertation</td>
<td>8-12 s.h.</td>
</tr>
</tbody>
</table>

Applicants to the Ph.D. program should be interested in the opportunity to join a small group of students working to understand mass communication in cultural contexts. A more complete description of the graduate program is available in the Graduate Studies Handbook, on the school's web site.

Facilities

The School of Journalism and Mass Communication has special laboratories for photography, typography, audio, video, online newswriting, desktop, and web publishing. Many students work on the staff of the University's award-winning student newspaper, The Daily Iowan.

The school has its own resource center and houses offices of the Iowa High School Press Association and the Quill and Scroll Society, an international honor society for high school journalists.

Iowa Center for Communication Study

The center encourages and facilitates student and faculty research in the field of communication. It sponsors publications and oversees editing of two periodicals, the Journal of Communication Inquiry and The Iowa Guide: Scholarly Journals in Mass Communication and Related Fields.
Financial Aid

More than $110,000 in scholarships is disbursed to undergraduate and graduate journalism majors each year. Information and applications for journalism scholarships are available from the school each fall. Research and teaching assistantships are available for graduate students, with preference given to doctoral students. The school also has a program of modest financial support for student research projects.

Professional Enrichment

The school’s internship and placement coordinator helps students who wish to take advantage of learning opportunities outside the classroom. Students may take one internship for credit, registering with appropriate faculty sponsor for the course 019:099 Journalism Internship. This internship credit does not fulfill requirements for the major, but it does count toward the maximum 40 s.h. of journalism and mass communication credit that can be applied toward the degree. Students may take additional internships for no credit through 409:019 Internship in Journalism. In addition to internships, student-operated media—including The Daily Iowan and KRUI-FM radio—provide opportunities for journalism experience.

Job Placement

The school’s internship and placement coordinator helps students seeking career guidance and employment opportunities. The school posts notices of professional jobs open to journalism students and graduates and publicizes them on its electronic mailing list. It cooperates with the University’s Career Center in providing career guidance and placement services as well as workshops and programs on job-seeking skills.

Special Activities

The school engages in a variety of activities for the enrichment of students, faculty, and the entire campus. Speakers visit campus each year under lecturerships funded by the John F. Murray and Leslie G. Moeller Fund. In addition, guest speakers are funded through the Hearst Visiting Professionals Program and the Habeeck Daily Iowan Visiting Professionals Program. Campus organizations for students include Kappa Tau Alpha (KTA), a national society honoring scholarship in journalism; the National Association of Black Journalists (NABJ), the Public Relations Student Society of America (PRSSA), and the Society of Professional Journalists (SPJ).

Courses

Primarily for Undergraduates

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>019:039</td>
<td>Social Scientific Foundations of Communication</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>019:090</td>
<td>Journalistic Reporting and Writing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>019:101</td>
<td>Journalistic Reporting and Writing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>019:102</td>
<td>Journalistic Reporting and Writing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>019:103</td>
<td>Journalistic Reporting and Writing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>019:104</td>
<td>Journalistic Reporting and Writing</td>
<td>3 s.h.</td>
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<tr>
<td>019:105</td>
<td>Journalistic Reporting and Writing</td>
<td>3 s.h.</td>
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<tr>
<td>019:106</td>
<td>Journalistic Reporting and Writing</td>
<td>3 s.h.</td>
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<tr>
<td>019:107</td>
<td>Journalistic Reporting and Writing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>019:108</td>
<td>Journalistic Reporting and Writing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>019:109</td>
<td>Journalistic Reporting and Writing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>019:110</td>
<td>Journalistic Reporting and Writing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>019:111</td>
<td>Journalistic Reporting and Writing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>019:112</td>
<td>Journalistic Reporting and Writing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>019:113</td>
<td>Journalistic Reporting and Writing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>019:114</td>
<td>Journalistic Reporting and Writing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>019:115</td>
<td>Journalistic Reporting and Writing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>019:116</td>
<td>Journalistic Reporting and Writing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>019:117</td>
<td>Journalistic Reporting and Writing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>019:118</td>
<td>Journalistic Reporting and Writing</td>
<td>3 s.h.</td>
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<tr>
<td>019:119</td>
<td>Journalistic Reporting and Writing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>019:120</td>
<td>Journalistic Reporting and Writing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>019:121</td>
<td>Journalistic Reporting and Writing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>019:122</td>
<td>Journalistic Reporting and Writing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>019:123</td>
<td>Journalistic Reporting and Writing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>019:124</td>
<td>Journalistic Reporting and Writing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>019:125</td>
<td>Journalistic Reporting and Writing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>019:126</td>
<td>Journalistic Reporting and Writing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>019:127</td>
<td>Journalistic Reporting and Writing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>019:128</td>
<td>Journalistic Reporting and Writing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>019:129</td>
<td>Journalistic Reporting and Writing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>019:130</td>
<td>Journalistic Reporting and Writing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>019:131</td>
<td>Journalistic Reporting and Writing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>019:132</td>
<td>Journalistic Reporting and Writing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>019:133</td>
<td>Journalistic Reporting and Writing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>019:134</td>
<td>Journalistic Reporting and Writing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>019:135</td>
<td>Journalistic Reporting and Writing</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

114 College of Liberal Arts and Sciences  •  Departments and Majors
Advanced work in the student's visual or broadcast area of specialization. 3 s.h.

Communication 3 s.h.

Racism in various genres of mass communication (music, television, film, print); analysis of images and messages related to African American culture. GE: cultural diversity. Same as 129:122.

Communication Technology and Society 3 s.h.

Implications and effects of computer-based forms of communication, especially the Internet, for journalists, the media audience, and society at large.

Gender and Mass Media 3 s.h.

Media images and representations of the body in terms of gender; impact on people, society, media and body image, sexuality, gender roles, gender and power, race, ethnicity, class, age; critical analysis of mediated images.

Journalism Ethics 3 s.h.

Application of ethical principles in journalistic decision making, consideration of potentially conflicting values, loyalties, and goals that force professional journalists to make difficult choices.

Topics in Mass Communication 3 s.h.

Focus on particular area, issue, approach or body of knowledge; may include international media, media criticism, new technologies, history of documentary photography, literary journalism, media ethics. Repeatable.

Advanced Reporting and Writing 4 s.h.

Project journalism; extended magazine pieces, series for newspapers, or task force projects by entire class on a major issue, with goal of publication. Repeatable. Prerequisite: one course from 019:120 through 019:125.

Advanced Photojournalism 4 s.h.

Photojournalism skills; may include documentary photography, advanced photojournalism methods and techniques. Repeatable. Prerequisite: 019:132 or consent of instructor.

Advanced Media Workshop 4 s.h.

Journalism and mass communication skills; may include editing, broadcasting, design, multimedia. Repeatable. Prerequisite: one course from 019:120 through 019:139.

Advanced Television News 4 s.h.

Advanced training and experience in producing, writing, and reporting television news packages and newscasts; emphasis on meeting professional standards. Repeatable. Prerequisite: 019:134 or consent of instructor.

Special Projects in Mass Communication 1-3 s.h.

Research and readings to fit needs, interests of students. Prerequisite: consent of instructor.

Readings in Communication and Mass Communication 1-3 s.h.

Focus on a problem or issue. Prerequisite: consent of instructor.

Honors Readings 1-3 s.h.

Topic in journalism or mass communication, chosen by student. Repeatable. Prerequisites: honors standing and consent of instructor.

Honors Project 3 s.h.

Independent research for candidates completing honors projects. Prerequisite: consent of instructor.

Master's Journalism Laboratory 3 s.h.

Advanced writing, editing, and research for student's focus area, approaches, or techniques of inquiry. Repeatable. Prerequisite: consent of instructor.

Graduate Media Workshop 3 s.h.

How concept of news and news work has been studied in occupational, organizational, social, cultural contexts. 3 s.h.

Communication and Change 3 s.h.

Functional and critical perspectives on changing communication forms and their implications; theoretical and methodological approaches to research involving innovation.

Problems in International Communication 3 s.h.

Representative topics: communication systems in national development and globalization; international and cross-cultural communication structure and theory; human rights; images, values; mass persuasion, laws, agreements, information channels, content, flow, effects; censorship, language, literacy.

Gender and Mass Communication 3 s.h.

Approaches to the study of gender and communication; topics vary.

Social Theory 3 s.h.

Social theorists who emphasize communication processes in their analyses of social interaction, society.

Theor of Popular Culture 3 s.h.

Major theoretical notions about popular culture and its intersection with the mass media.

Communication Research: Historical Approaches 3 s.h.

Planning, conducting, reporting of historical inquiry; attention to interpretive frameworks for historical research.

Quantitative Research Methods 3 s.h.

Journalism and mass communication research methods that involve collecting quantifiable data, including surveys, content analyses, experiments.

Qualitative Research Methods 3 s.h.

Interpretive research methods for media studies that involve field observation, interviewing, textual analysis.

Historical and Legal Research Methods 3 s.h.

Journalism and mass communication research methods that involve examination of historical and legal documents, artifacts, other materials.

Approaches to Teaching 3 s.h.

Institutional and disciplinary issues that influence the journalism/mass communication classroom, philosophies of teaching, and use of teaching strategies, techniques, and classroom technologies; for students planning to work in academia.

Contemporary Problems in Law and Journalism 3 s.h.

Interdisciplinary approach; impact of new technologies on journalism, in treatment of law. Same as 091:013.

Mass Communication Seminar 3 s.h.

Readings, research.

Master's Tutorial 3 s.h.

Topics in communication and mass communication inquiry. Prerequisite: consent of instructor.

Master's Practicum 3 s.h.

Research, readings, projects to fit needs, interests of students. Prerequisite: consent of instructor.

Master's Research 3 s.h.

Independent research for projects, theses. Repeatable. Prerequisites: consent of sponsoring faculty member, director of graduate studies, and instructor.

Ph.D. Seminar 1 s.h.

Forum on theoretical or methodological problems in mass communication. Repeatable. Prerequisite: consent of instructor.

Mass Communication and Cultural Theory 3 s.h.

Basic theoretical approaches to mass communication; emphasis on role of cultural traditions in shaping mass media; attention to contemporary British, and continental scholarship.

Ph.D. Tutorial 1 s.h.

Communication and mass communication inquiry. Prerequisite: consent of instructor.

Ph.D. Research Practicum 3 s.h.

Conceptualization and execution of research projects. Prerequisite: consent of instructor.

Dissertation 0-12 s.h.

Students who have specific career goals or prepare for graduate or professional study. Students who have specific career goals or advanced degree programs in mind should learn what educational background they will need in order to achieve their goals, and they should include appropriate courses in their B.L.S. degree programs.

Bachelor of Liberal Studies

The Bachelor of Liberal Studies (B.L.S.) program is offered by each of Iowa's three Board of Regents universities (The University of Iowa, Iowa State University, and The University of Northern Iowa) to serve adults whose job, family, geographic location, or other personal circumstances prevent them from attending college as full-time, on-campus students. The B.L.S. program has no on-campus residence requirement, but students must complete 30 s.h. of University of Iowa course work.

Students may complete the degree without attending a course on campus. Credit applicable toward the degree may be earned through several types of courses, including Saturday & Evening Classes, print- and web-based independent study courses, extension courses at sites throughout Iowa, interactive and broadcast televised courses, and regular session courses.

Courses from any of the three Regents universities may be applied toward the degree, as may appropriate courses from other accredited institutions.

At The University of Iowa, the B.L.S. is awarded by the College of Liberal Arts and Sciences and administered by the Division of Continuing Education. Since the B.L.S. is a general undergraduate degree without a traditional major, B.L.S. students may not earn minors. However, the requirements are sufficiently flexible to allow students, with the assistance of a B.L.S. adviser, to structure a program that meets their individual needs and objectives. Many B.L.S. candidates plan programs designed to help them advance in their chosen career, begin a new career, or prepare for graduate or professional study. Students who have specific career goals or advanced degree programs in mind should learn what educational background they will need in order to achieve their goals, and they should include appropriate courses in their B.L.S. degree programs.

Requirements

Of the 120 s.h. required for the degree, 30 must be earned at The University of Iowa after admission to the B.L.S. program. At least 60 s.h. must be earned at four-year colleges, including 45 s.h. defined as upper-level. For the B.L.S., University of Iowa courses are considered upper-level if they are numbered 100 and above. A few courses numbered below 100 may be considered upper-level for the B.L.S.; a list of these courses is available from the Center for Credit Programs.
B.L.S. candidates are required to complete the General Education Program (contact the College of Liberal Arts and Sciences for more information).

Since there are no traditional majors available through the B.L.S. program, candidates organize their study by earning at least 12 s.h. of credit—including 6 s.h. of upper-level credit—in each of the three following areas.

Humanities (e.g., literature, history, philosophy, religion)
Communication and arts (e.g., journalism, speech, drama, art, music)
Natural sciences and mathematics (e.g., geology, biological sciences, statistics, computer science)
Social sciences (e.g., geography, psychology, economics, political science, anthropology)
Professional fields (e.g., business, education, nursing, social work, library science)

Semester hours applied toward completion of the General Education Program may not be used to meet the B.L.S. distribution area requirements, but they may be counted toward the required 45 s.h. of upper-level course work, if applicable.

Students must maintain a g.p.a. of 2.00 or higher in all course work applied toward the degree, all course work completed after admission to the program, and all upper-level course work.

All other College of Liberal Arts and Sciences policies regarding pass/nonpass and satisfactory/fail grading, academic standards, and so forth apply to B.L.S. students.

Further information about the B.L.S. program is available from the Center for Credit Programs.

**Admission**

Students who want to graduate with a B.L.S. degree must make a formal application for admission to the program. Interested students may contact the Center for Credit Programs office before applying.

All applications to the program are screened. Students who have access to the full range of the University's daytime classes should seek admission to the College of Liberal Arts and Sciences in order to pursue a major leading to a degree other than the B.L.S. Non-B.L.S. students interested in tailoring a degree program to their individual interests should consider pursuing the interdepartmental studies major (see "Interdepartmental Studies" in the Catalog).

Linguistics is the scientific study of human languages, which are highly complex systems. Areas of study include word structure (morphology), speech sounds (phonetics) and their patterns of combination and contrast (phonology), sentence structure (syntax), and meaning relations (semantics).

Linguists study well-known and familiar languages, such as English, Spanish, Russian, and Chinese. They also study less well-studied languages and even those languages about which little has been discovered. While human languages are different from one another in many ways, there are broad similarities among them, supporting the idea that the capacity for language is part of human cognitive functions.

The description of formal patterns of human language has a number of applications. Linguistics is linked with anthropology and other social sciences in studying the relation of language use to culture, region, class, and gender. It is connected to psychology, and to speech and hearing, in studying how children learn language, how speakers process and interpret language, and how injuries and disorders affect both production and perception of speech. Linguists and computer scientists collaborate in constructing computational representations of syntax and semantics for purposes of processing natural languages.

Linguistics has important ties with instruction in foreign languages and in English as a second language. Studies of how languages are learned are based in part on analysis of the languages in question. They also are grounded strongly in theories of second language acquisition, which in turn are related to theories of how linguistic knowledge is represented in the mind.

People with linguistic training teach English as a second language and help clinicians retrain people with linguistic disabilities. Some help design school programs for minority groups or intelligence and achievement tests. Linguists also work in occupations related to law, the computer industry, and foreign languages.

**Undergraduate Program**

High scores on verbal, analytic, and quantitative aptitude tests are indicators of success in linguistics. Although few aspects of the field deal with numbers, students must be able to reason logically and explicitly and deal with formulas and abstract symbols. Depending on their vocational goals, prospective linguistics students should consider pursuing their studies either through the M.A. in linguistics with a professional focus or through the doctorate; or they should take a second major. Appropriate companion fields include foreign languages, English, anthropology, sociology, speech pathology, psychology, mathematics, computer science, philosophy, and elementary and secondary education.

**Bachelor of Arts**

The B.A. in linguistics prepares students to do basic language analysis in syntax-semantics (sentence patterns and their relation to meanings) and phonology (sound patterns). Elective courses in a variety of subspecialties enable students to tailor the program to their own interests.

The major in linguistics requires 24 s.h. of course work, as follows:

- 103:100 Introduction to Linguistics 3 s.h.
- 103:110 Articulatory and Acoustic Phonetics 3 s.h.
- 103:111 Syntactic Analysis 3 s.h.
- 103:112 Phonological Analysis 3 s.h.
- A course in language history (e.g., 103:131 or 103:139) or
- A course in an old language (classical Greek, Latin, Old English, Sanskrit)

Electives (chosen in consultation with undergraduate adviser)

Students must complete no fewer than 15 s.h. of the major, including 103:110, 103:111, and 103:112, at The University of Iowa.

**TESL Emphasis**

As part of the B.A. in linguistics, students can earn an emphasis in Teaching English as a Second Language (TESL). This emphasis can prepare students to teach English to non-native speakers abroad. This emphasis is also excellent preparation for graduate work in second language acquisition. To earn the TESL emphasis, students take the five required courses plus the following.

Both of these:

- 103:141 The Structure of English 3 s.h.
- 103:145 Methods of Teaching English as a Second Language 3 s.h.

One of these:

- 103:107 Practicum in Teaching English as a Second Language 3 s.h.
- 103:147 Research Methods 3 s.h.
- 103:156 Linguistic Theory and Language Acquisition 3 s.h.
- 103:161 Practical Phonetics 3 s.h.
- 103:173 Generative Second Language Acquisition 3 s.h.

**Four-Year Graduation Plan**

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)
Before the third semester begins: at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: Introduction to Linguistics (103:100) and at least one-half of the semester hours required for graduation

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

Before the eighth semester begins: two more courses in the major

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

Honors

Members of the University Honors Program may graduate with honors in linguistics by completing the major course work plus an honors thesis, which must be prepared in consultation with the student's academic adviser. Membership in the University Honors Program requires that students maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information).

Minor

The undergraduate minor in linguistics requires 15 s.h. of linguistics courses, including at least 12 s.h. taken at The University of Iowa in advanced courses (numbered 103:100 and above). The minor must include 103:100, 103:110, 103:111, and 103:112. Course work toward the minor may not be taken pass/nonpass.

Joint B.A./M.A.

with TESL Focus

Qualified undergraduate linguistics majors may apply to the Joint B.A./M.A. program, in which they receive an M.A. in linguistics with TESL (Teaching English as a Second Language) focus one year after receiving the B.A. To enter the program, a student must:

be a University of Iowa undergraduate student majoring in linguistics;

complete at least 80 s.h. of undergraduate work, typically by the end of the fifth semester; and

have a g.p.a. of at least 3.50.

As part of the undergraduate major, students take 103:141 The Structure of English, a course in language history, 103:100 Introduction to Linguistics, and 103:110 Articulatory and Acoustic Phonetics.

Joint B.A./M.A. students may count 12 s.h. toward both the B.A. and the M.A. Instead of taking 103:111 Syntactic Analysis to fulfill the B.A. syntax requirement, they take 103:201 Introduction to Syntax, the first course in the mandatory two-course syntax sequence for M.A. students. Instead of taking 103:112 Phonological Analysis to fulfill the B.A. phonology requirement, they take 103:203 Introduction to Phonology, the first in the graduate two-course phonology sequence.

In addition, 103:145 Methods of Teaching English as a Second Language and 103:202 Syntactic Theory count toward both degrees and typically are taken during the senior year.

Graduate Programs

The graduate programs emphasize theory and research. Students interested in nonuniversity careers also may take courses in applied linguistics and other fields, either in connection with doctoral work or as an option in the M.A. program.

Master of Arts

All students take a required set of core courses in phonology and syntax. Comprehensive examinations cover phonology, syntax, (and applied linguistics for students who choose this option). The required core courses are as follows.

103:110 Articulatory and Acoustic Phonetics 3 s.h.
103:173 Generative Second Language Acquisition 3 s.h.
103:201 Introduction to Syntax 4 s.h.
103:202 Syntactic Theory 3 s.h.
103:203 Introduction to Phonology 3 s.h.
103:204 Phonological Theory 3 s.h.
One of these:
103:113 Linguistic Field Methods 3 s.h.
103:210 Linguistic Structures 3 s.h.
103:217 Language Universals and Linguistic Typology 3 s.h.

Students who write a thesis at least 9 s.h. of elective courses, exclusive of thesis hours, and receive up to 6 s.h. of thesis credit. Those who choose the nonthesis option must complete at least 36 s.h., including the 21 s.h. departmental core and 15 s.h. of course work in the department. The 15 s.h. may include a 12 s.h. focus (e.g., teaching English as a second language). All courses that count toward the degree must be approved by the student's adviser. For students with a linguistics background, up to 6 s.h. of course work can be waived if the department determines that the student completed comparable work before enrolling in the program.

All students must have earned a minimum of 30 s.h. of graduate credit to receive the degree, regardless of prior preparation.

Doctor of Philosophy

The highly selective Ph.D. program provides students with a strong foundation in theoretical linguistics and helps them develop the skills they will need to explore the close relationship between linguistics and related disciplines. The core is as follows (total of 18 s.h.).

Two upper-level syntax courses numbered 103:212 or above
Two upper-level phonology courses numbered 103:214 or above
At least two seminars
An approved specialty area of 18 s.h. also is required, and students must achieve proficiency in a foreign language, as specified by department regulations.

To pass the comprehensive examination for the Ph.D., a student must gain approval for two papers of publishable quality. One must be in phonology or syntax. The other should be in an area of the student's choosing and must be distinct from the area of the first paper.

An oral defense of the dissertation and three years of residence also are required. In addition, all candidates are required to gain supervised experience in teaching and research.

Admission

To be considered for admission to the graduate program in linguistics, prospective students must complete an application form, submit GRE General Test scores, and have three letters of recommendation sent to the Department of Linguistics. Students whose first language is not English also must submit TOEFL scores. Applications for admission should be submitted as early as possible for the following academic year.

Financial Support

Fellowships, teaching assistantships, and research assistantships are available to qualified graduate students. Applications are due no later than March 1; earlier submission is strongly encouraged.

University of Iowa Fellowships are available for exceptionally well-qualified applicants. Those interested in being nominated for a University of Iowa Fellowship should submit all application materials by January 15.

Applications for all awards are considered only for students whose application for admission is complete.

Language Instruction

Instruction in Swahili, Zulu, and Arabic is provided by native-speaking teachers through the department. Elementary and intermediate Swahili and Arabic are taught every year, while elementary and intermediate Zulu are taught alternate years. The classroom emphasis is on oral communication skills. Language skills instruction is augmented by discussion of various aspects of the cultures.

Students may use the four-semester sequence in Swahili, Zulu, or Arabic to complete the College of Liberal Arts and Sciences General Education Program foreign language component. The sequences also satisfy requirements for certain undergraduate programs, for example, those in African American World Studies.

English as a Second Language

ESL instruction is offered in three distinct, but related, programs: the ESL credit support courses, the Iowa Intensive English Program (IIEP), and the Teaching Assistant Preparation in English
Teaching Assistant Preparation in English (TAPE)

The TAPE program is designed for graduate students whose first language is not English, who need additional work on English communication, and who will hold teaching assistantships while at The University of Iowa. Only students who need the program and who have sufficient competence in English to profit from it are eligible. TAPE courses are open to graduate students who have been evaluated for TA certification and to others if space is available. Students are taught by full-time professional ESL instructors.

Facilities

The Department of Linguistics has a laboratory equipped with 12 computer workstations for small group instruction, individual work, and student research in speech analysis, second language acquisition, computational linguistics, and other areas. Remote terminals and personal computers are also available to students. The departmental reading room, which contains a modest library, provides a common meeting place for faculty and students. Students have considerable influence on departmental affairs and enjoy a high degree of individual instruction.

Courses

Primarily for Undergraduates

103:011 Language and Society 3 s.h.
Correlations between social and linguistic behavior; methods for discovering and describing socially significant language behavior; educational and political implications of findings. GE: social sciences.

103:013 Language and Formal Reasoning 3 s.h.
Semantics and sentence structure of English; word meanings, meaning connected to truth conditions, reasoning based on logical connectives and quantifiers, evaluation of valid and invalid arguments. GE: quantitative or formal reasoning.

101:015 Elementary Swahili I 4 s.h.
Development of speaking, listening, reading, writing skills. GE: foreign language. Offered fall semesters. Same as 129:015.

101:016 Elementary Swahili II 4 s.h.
Continuation of 101:015. Offered spring semesters. GE: foreign language. Prerequisite: 101:015 or equivalent. Same as 129:016.

103:017 Intermediate Swahili I 4 s.h.
Offered fall semesters. GE: foreign language. Prerequisite: 101:016 or equivalent. Same as 129:017.

103:018 Intermediate Swahili II 4 s.h.
Continuation of 103:017. Offered spring semesters. GE: foreign language. Prerequisite: 103:017 or equivalent. Same as 129:018.

103:019 Advanced Swahili 3 s.h.
Advanced speaking, listening, reading, and writing skills. Prerequisite: 103:018 or equivalent. Same as 129:019.

103:020 Introduction to the Study of Languages 3 s.h.
Non-technical introduction; classification of languages, writing systems, language and the brain, acquisition of first and second languages, bilingualism, animal communication, language and computing.

103:021 Elementary Arabic I 4 s.h.
Speaking, listening, reading, and writing skills.

103:022 Elementary Arabic II 4 s.h.
Continuation of 103:021. Prerequisite: 103:021 or equivalent.

103:023 Intermediate Arabic I 4 s.h.
Communication in speaking and writing; cultural topics. Prerequisite: 103:022.

103:024 Intermediate Arabic II 4 s.h.
Continuation of 103:023. Prerequisite: 103:023.

103:028 English Grammar 3 s.h.
Recognizing nouns, verbs, adverbs, adjectives, and other parts of speech; sentence analysis; subjects, objects; types of sentences; passives, relative clauses; for students with little or no background in English grammar study.

103:031 Elementary Zulu I 4 s.h.
Zulu language and culture through speaking, listening, reading, writing. Same as 129:031.

103:032 Elementary Zulu II 4 s.h.
Continuation of 103:031. Prerequisite: 103:032 or equivalent. Same as 129:032.

103:033 Intermediate Zulu I 4 s.h.
Continued skill development; review and expansion of basic grammar. Prerequisite: 103:032 or equivalent. Same as 129:033.

103:034 Intermediate Zulu II 4 s.h.
Continuation of 103:033. Prerequisite: 103:033. Same as 129:034.

103:035 English Words 3 s.h.
English word formation, basic units of English vocabulary; vocabulary skill expansion; word structure, history of English, language change, phonetics, phonology, sociolinguistics.

103:045 Language Rights 3 s.h.
Language minorities and linguistic human rights in the United States and the world; language and identity, culture, power, case studies of language rights deprivation.

103:055 Languages of the World 3 s.h.
Overview of structural similarities and differences in human language; survey of the world's major language families; emphasis on sentence and word structure, sound systems, and modes of classification. GE: social sciences.

103:095 Research Practicum 3 s.h.
Individual participation in faculty research projects. Prerequisite: consent of instructor.

103:098 Topics in Linguistics 3 s.h.
Undergraduate seminar. Prerequisite: consent of instructor.

103:099 Special Project 3 s.h.
Independent research.

For Undergraduate and Graduate Students

103:100 Introduction to Linguistics 3 s.h.
Introduction to the study of human language: sounds and their contrasts and variation, words and meaningful subunits, sentence structure, historical change. Same as 118:100, 113:100.

103:107 Practicum in Teaching English as a Second Language 3 s.h.
Practical experience in TESL, observation and participation in intensive English classes; design and teaching of ESL classes under supervision. Prerequisites: 103:145 and consent of instructor.

103:110 Articulatory and Acoustic Phonetics 3 s.h.
Production and transcription of all sounds in human languages; physics of sound, computer analysis of speech sounds. Offered fall semesters.

103:111 Syntactic Analysis 3 s.h.
Introduction to sentence structures and basic abstract relations that characterize them, including word category, word order, hierarchical organization; problem sets from English and other languages as basis for discussion, analysis. Offered spring semesters.

103:112 Phonological Analysis 3 s.h.
Introduction to analysis of sound systems; generative phonological theory; practice in phonological analysis using data from a variety of languages. Offered spring semesters. Prerequisite: 103:110.

103:113 Linguistic Field Methods 3 s.h.
Collection and analysis of primary linguistic data from unilinear language, methods of elicitation, theory, practical problems; extensive practice in eliciting data from a consultant. Prerequisites: 103:110, 103:111, and 103:112.

103:120 Accelerated Elementary Arabic 4, 6 s.h.
First-year Arabic in one semester.

103:121 Elementary Arabic I for Graduates 3 s.h.
Speaking, listening, reading, and writing skills.
103:184 English as a Second Language: Pronunciation and Oral Skills 3 s.h.
Speaking skills for the U.S. academic setting and society; pronunciation, grammar, vocabulary; structured opportunity to develop fluency.

103:185 English as a Second Language: Grammar 3 s.h.
Development of skills appropriate to formal speaking, diagnosis and correction of persistent pronunciation problems; correct stress, intonation.

103:186 English as a Second Language: Writing 3 s.h.
Complex grammatical constructions, discourse considerations, formal vocabulary use expected of university students; organization skills, style, arguments, analytic methods used in academic writing.

103:188 English as a Second Language: Oral Skills for M.B.A. Students 3 s.h.
Improvement of M.B.A. students' oral skills; focus on career-oriented situations (interviews, presentations, discussions, meetings). Prerequisite: full-time M.B.A. study and enrollment by test.

103:189 English as a Second Language: Reading Skills 3 s.h.
Increasing reading speed and comprehension of university-level writing and vocabulary; exercises, discussion, and note-taking assignments to develop critical analysis skills.

Iowa Intensive English Program (IIEP)
These courses are for students whose first language is not English. The Iowa Intensive English Program primarily serves students on conditional admission, those who have not yet been admitted to the University, and those whose TOEFL scores are below 530 on the paper-based test or 197 on the computer-based test.

103:001 Iowa Intensive English: Communication Skills 0 s.h.
Aural comprehension, spoken English; U.S. culture; information exchange, talking with Americans; cultural differences; beginning, intermediate, advanced. Prerequisite: consent of ESL coordinator.

103:002 Iowa Intensive English: Communication Skills for Professionals 0 s.h.
Listening and speaking skills for international professionals; conversational fluency, language for professional interactions (e.g., discussions and presentations).

103:003 Iowa Intensive English: Reading Skills 0 s.h.
Effective reading skills and practice of reading strategies using newspapers, popular magazines, schedules, documents, academic textbooks, correspondence, literature; beginning, intermediate, advanced. Prerequisite: consent of ESL coordinator.

103:004 Iowa Intensive English: Grammar 0 s.h.
Correct use of English grammatical structures; extensive practice to achieve competence in English communication; beginning, intermediate, advanced. Prerequisite: consent of ESL coordinator.

103:005 Iowa Intensive English: Writing 0 s.h.
Prewriting and formatting, journal entries, letters, critiques, essay exams, short papers involving library use; revising and editing; beginning, intermediate, advanced. Prerequisite: consent of ESL coordinator.

Teaching Assistant Preparation in English (TAPE)
The TAPE program is designed for prospective teaching assistants whose first language is not English and need additional work on English communication skills. Entry to the program is by test only.

103:006 TA Preparation in English: Fluency Building 0 s.h.
Pronunciation, conversational fluency, knowledge of U.S. culture. Prerequisite: consent of ESL coordinator.

103:007 TA Preparation in English: Pronunciation 0 s.h.
Intensive work toward maximum intelligibility; emphasis on stress, timing, intonation. Prerequisite: consent of ESL coordinator.

103:008 TA Preparation in English: Presentation Skills 0 s.h.
Intelligibility of speech and clarity of expression in presenting and responding; practice in videotaped lectures. Prerequisite: consent of ESL coordinator.

103:009 TA Preparation in English: Orientation 0 s.h.
Student expectations, typical teacher/student relationships, basic classroom management in a U.S. university.

Chair: David Manderscheid
Professors emeriti: Eugene W. Johnson, Erwin Kleinfeld, Margaret Kleinfeld, Frank J. Kosier, Harold L. Schoen, Marilyn Zweng
Associate professors: Richard Baker, Frauke Bleher, Oguz Dururunc, Laurent Jay, John P. Ledaert, Tong Li, Walter Seaman, David Stewart
Associate professor emeritus: Michael A. Geraghty Assistant professor: Isabel Darcy
Assistant professor emerita: Matilde Macagno
Undergraduate degrees: B.A., B.S. in Mathematics
Undergraduate nondegree program: minor in Mathematics
Graduate degrees: M.S., Ph.D. in Mathematics

Web site: http://www.math.uiowa.edu

Mathematics is a basic tool for understanding modern society as well as a crucial requirement for many careers in science, engineering, business, and the professions. Research in this living, dynamic subject is at the highest level in history.

An undergraduate degree in mathematics prepares students for a variety of careers in government and business, for secondary teaching, for graduate study, and with proper planning, for a variety of professional programs. Graduate study is advisable for some industrial and governmental positions and for college and university teaching and research.

Undergraduate Programs
The department offers two undergraduate degrees in mathematics, the Bachelor of Science and the Bachelor of Arts. Students seeking a bachelor's degree enroll in one of three programs: Program A is for students who plan to work in industry or government or pursue graduate study in mathematics; program B is for students who seek secondary school teaching licensure; and program C is for those seeking specialization in a math-related area, such as actuarial science, biomathematics, business, computer science, economics, physics, statistics, and so forth. Program C may be especially appropriate for students who plan to seek a math-related job after earning a B.A. or B.S. in mathematics, rather than going on to graduate study.

Students may choose to combine a degree in mathematics with one in computer science, statistics, or actuarial science. The department also offers a minor in mathematics.

Candidates for all Department of Mathematics undergraduate degrees must complete the College of Liberal Arts and Sciences General Education Program. The department encourages students to choose courses that complement their mathematics interests.

At least 15 s.h. of post-calculus course work applied toward the major requirements must be taken at The University of Iowa. Post-calculus courses are those numbered 22M:027 and higher that have a calculus prerequisite.

Students must maintain a g.p.a. of at least 2.00 in all course work for the major to earn a degree in mathematics.

Additional policies concerning transfer credit, credit by correspondence, credit by examination, cumulative grade-point average, rules relating to regression and duplication, and so forth, are discussed in the College of Liberal Arts and Sciences Student Academic Handbook.

Information about duplication, regression, and use of the second-grade only option for mathematics courses is available from the mathematics department.

The Handbook for Undergraduate Majors is available in the mathematics department office and on the department's web site. It contains detailed information about schedule planning and career options. Additional information on admission, financial support, employment opportunities, the faculty, facilities, and other topics is available on the University and departmental web sites.

Program A
This program is primarily for students who plan to work in industry or government or to pursue graduate study in mathematics.

Students must complete seven core courses. In addition, B.A. students must complete at least four electives, and B.S. students must complete at least six.

Core Courses
A two-semester sequence of calculus I-II (8 s.h.) is required. Either of the following two-semester sequences is acceptable. However, the sequences are distinct enough that the department discourages students from switching sequences mid-study without a strong need and good preparation. Advanced placement credit, CLEP credit, and credit obtained through the Mathematics Incentive Program is accepted for all or part of the calculus requirement.

One of these sequences:
22M:021 22M:022 Calculus and Modeling I-II 8 s.h.
22M:025 22M:026 Calculus I-II 8 s.h.

All of these:
22M:027 Introduction to Linear Algebra 4 s.h.
22M:050 Introduction to Abstract Algebra I 3 s.h.


CORE COURSES

A two-semester sequence of calculus I-II (8 s.h.) is required. Either of the following two-semester sequences is acceptable. However, the sequences are distinct enough that the department discourages students from switching sequences mid-study without a strong need and good preparation. Advanced placement credit, CLEP credit, and credit earned through the Mathematics Incentive Program is accepted for part or all of the calculus requirement.

One of these sequences:

- **22M:021-22M:022 Calculus and Modeling I-II**
- **22M:025-22M:026 Calculus I-II**

All of these:

- **22C:016 Computer Science I: Fundamentals**
- **22M:027 Introduction to Linear Algebra**
- **22M:028 Calculus III**
- **22M:050 Introduction to Abstract Algebra I**
- **22M:055 Fundamental Properties of Spaces and Functions I**
- **22S:120 Probability and Statistics**

Students who wish to take 22M:055 and 22M:056 instead of 22M:028 and 22M:055 should consult their adviser.

One of these:

- **22M:070 Foundations of Geometry**
- **22M:106 Transformation Geometry**

One of these:

- **22M:150 Introduction to Discrete Mathematics**
- **22M:151 Discrete Mathematical Models**

Higher-level courses may be substituted for the core courses, with Department of Mathematics approval.

ELECTIVES

Program B candidates for the B.A. degree must take at least one additional course beyond calculus. Program B candidates for the B.S. degree must take at least three additional courses beyond calculus, of which two must be numbered 22M:106 or above. With their adviser’s approval, capable students are encouraged to substitute higher-level courses in the same subject area for any of the electives. The Handbook for Undergraduate Majors offers advice on course selection.

Program C

This program provides a degree with specialization in a math-related area, for instance, mathematics of optimal business decision making, economics, physics, biostatistics, biomathematics, computer science, and statistics and actuarial science. In consultation with the faculty adviser, each student prepares a program of studies tailored to his or her interests and academic or career goals. Building on a core of mathematics courses, students have considerable freedom to design their curriculum. The proposed program of studies must be approved by the mathematics department’s undergraduate committee. Students should submit their study plans on a Program C Plan of Study form, available in the mathematics department office. The Handbook for Undergraduate Majors has plans for choosing electives in several areas; students may use these or propose other plans.

CORE COURSES

A two-semester sequence of calculus I-II (8 s.h.) is required. Either of the following two-semester sequences is acceptable. However, the sequences are distinct enough that the department discourages students from switching sequences mid-study without a strong need and good preparation. Advanced placement credit, CLEP credit, and credit earned through the Mathematics Incentive Program is accepted for part or all of the calculus requirement.

One of these sequences:

- **22M:021-22M:022 Calculus and Modeling I-II**
- **22M:025-22M:026 Calculus I-II**


Computer Science

**22C:016 Computer Science I: Fundamentals**

Any course numbered above 22C:020 that counts toward an undergraduate major in computer science, except 22C:107 and 22C:198

Statistics and Actuarial Science

Students can count only one of these: 22S:120 or 22S:130. Neither of them can be counted if taken after 22S:153.

- **22S:120 Probability and Statistics**
- **22S:130 Introduction to Mathematical Statistics I**
- **22S:131 Introduction to Mathematical Statistics II**
- **22S:138 Bayesian Statistics**
- **22S:150 Regression, Time Series, and Forecasting**
- **22S:153 Mathematical Statistics I**
- **22S:154 Mathematical Statistics II**
- **22S:156 Applied Time Series Analysis**
- **22S:158 Experimental Design and Analysis**
- **22S:174 Stochastic Process Models**
- **22S:175 Risk Theory**
- **22S:176 Credibility and Loss Distributions**
- **22S:180 Mathematics of Finance**
- **22S:181 Life Contingencies I**
- **22S:182 Life Contingencies II**
- **22S:193 Statistical Inference I**
- **22S:194 Statistical Inference II**
- **22S:195 Probability and Stochastic Processes I**
- **22S:196 Probability and Stochastic Processes II**

Program B

This program is intended for students seeking secondary school teaching licensure. See the department’s Handbook for Undergraduate Majors as well as “Curriculum and Instruction” in the College of Education section of the Catalog.
Before the seventh semester begins: three or four more major courses and at least three quarters of the semester hours required for graduation.

Before the eighth semester begins: two or three more major courses.

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

Honors

In order to graduate with honors in mathematics, a student must be a member of the University Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information). Honors students in mathematics also must complete the regular requirements for an undergraduate major in mathematics with a g.p.a. of at least 3.40, and must complete either an honors project or the courses 22M:115 and 22M:116, and 22M:120 and 22M:121 with a g.p.a. of 3.00 or higher. Other sequences, such as 22M:170 and 22M:171, may be substituted with the approval of the honors adviser.

Students planning to do an honors project are responsible for finding a faculty member willing to supervise the project. Help in finding a project supervisor is available from the department. Students typically register for 22M:197 for at least 3 s.h. For more information, contact the mathematics department honors adviser.

Double Majors

Students who wish to combine a major in mathematics with a major in computer science, statistics, or actuarial science must satisfy the requirements of program A, program B, or program C in mathematics. Students are advised to seek the same degree (B.A. in both areas or B.S. in both); otherwise the University requires additional semester hours for graduation.

Transfer from Engineering to Mathematics

Certain students who have completed 22M:031, 22M:032, 22M:033, 22M:034, 22M:037, 22M:047, or 22M:048 may count these courses toward a bachelor's degree in mathematics. See the department’s Handbook for Undergraduate Majors.

Minor

The minor in mathematics requires a minimum of 15 s.h. earned in Department of Mathematics courses, including at least 12 s.h. in advanced courses at The University of Iowa. Neither transfer credit nor credit by examination is accepted toward the 12 s.h. of advanced work; advanced courses are 22M:027 and 22M:028, and all courses numbered 22M:033 or higher, except 22M:081, 22M:104, 22M:105, 22M:109, and 22M:195. See the department’s Handbook for Undergraduate Majors.

Graduate Programs

Master of Science

Students earn the M.S. through courses and comprehensive examinations. There is no M.S. thesis.

There are four programs leading to an M.S. in mathematics. The requirements (courses and comprehensive examination areas) may be modified with the department’s consent.

Program I

This program prepares students for further study of pure and applied mathematics and for employment in government and industry. The program requires a minimum of 30 s.h. of graduate credit, including the following course work in analysis, topology, and abstract algebra.

One of these sequences:
22M:115-22M:116 Introduction to Analysis I-II 6 s.h.
22M:210-22M:211 Analysis I-II 6 s.h.
22M:132 General Topology 3 s.h.

One of these sequences:
22M:120-22M:121 Abstract Algebra I-II 6 s.h.
22M:205-22M:206 Introduction to Algebra I-II 6 s.h.

Each student must take two comprehensive examinations, one on the analysis and topology courses and the other on the algebra courses.

Students' course work must include at least 24 s.h. in the following.

Mathematics

Any courses numbered 22M:110 or above, or equivalent

Computer Science

22C:135 Theory of Computation 3 s.h.
22C:145 Artificial Intelligence 3 s.h.
22C:160 High Performance Computer Architecture 3 s.h.

Any courses numbered 22C:200 or above

Statistics

22S:153 Mathematical Statistics I 3 s.h.
22S:154 Mathematical Statistics II 3 s.h.

Any courses having any of the above two courses as prerequisites

Any course numbered 22S:200 or above

Program II

This program is designed for secondary school teachers. The requirements are the same as those in program I or III, except that two mathematics education courses are required. All mathematics courses numbered 22M:100 or above may be used to satisfy the 24 s.h. requirement. Students are encouraged to consult with the mathematics education faculty when planning their courses of study.

Program III

This program focuses on applied mathematics. It requires a minimum of 30 s.h. of graduate credit, including at least 24 s.h. chosen from the Departments of Mathematics, Computer Science, and Statistics and Actuarial Science.

Students in program III take several courses and two comprehensive examinations, one on differential equations and one on numerical analysis/optimization.

The required courses are as follows.
22M:142 Nonlinear Dynamics and Chaos 3 s.h.
22M:144 Introduction to Partial Differential Equations I 2-3 s.h.

One of these:
22M:140 Continuous Mathematical Models 3 s.h.
22M:151 Discrete Mathematical Models 3 s.h.
22M:170 Numerical Analysis: Nonlinear Equations and Approximation Theory 3 s.h.
22M:171 Numerical Analysis: Differential Equations and Linear Algebra 3 s.h.
22M:174 Optimization Techniques 3 s.h.

Two of these:
22C:162 Advanced Operating Systems 3 s.h.
22C:231 Design and Analysis of Algorithms 3 s.h.
22M:118 Complex Variables 3 s.h.
22M:127 Matrix Theory 3 s.h.
22M:140 Continuous Mathematical Models [if not chosen above] 3 s.h.
22M:151 Discrete Mathematical Models [if not chosen above] 3 s.h.
22S:153 Mathematical Statistics I 3 s.h.
22S:154 Mathematical Statistics II 3 s.h.

Students who have courses or experience equivalent to the required courses may request substitute electives.

Program IV

This program is designed for nondepartmental students working toward Ph.D. degrees in areas that require mathematical knowledge. The program has no specific required courses. Course distribution requirements are the same as those for program I.

Students in program IV are considered to have passed the comprehensive examination for the master's degree in mathematics if they have maintained a g.p.a. of at least 3.00 in all mathematics courses taken for the M.S. in mathematics and have successfully completed the Ph.D. comprehensive examination in the chosen area.

Students in program IV are assigned a mathematics adviser, who works with them and their major adviser to plan an appropriate curriculum for the M.S. in mathematics. A suitable program of study should be approved by a mathematics adviser before the student takes the Ph.D. comprehensive examination, and a member of the mathematics faculty should serve on the Ph.D. comprehensive examination committee.
Admission

Admission to an M.S. program (I, II, or III) is based on a combination of undergraduate course work and grades, letters of recommendation, and GRE General Test scores (plus TOEFL scores for international students). The following guidelines are current, although exceptions may be made. Numerical standards are reset every year or two.

Students must have completed work in an undergraduate program equivalent to the bachelor's degree offered by the mathematics department. Students whose preparation does not meet this requirement may be admitted conditionally and are asked to take specific courses that cover the deficiency.

Students are expected to have an undergraduate g.p.a. of at least 3.20. Relevance and difficulty of courses are considered when evaluating grades; grades of C or lower in mathematics courses need to be balanced by A grades.

Students must submit three letters of recommendation to support their applications. They also are expected to score at least 650 on the quantitative section of the GRE General Test. Applicants are encouraged to submit scores for the mathematics area examination as well—particularly students who need financial support and whose credentials may show weak areas.

International students are required to demonstrate their competence in English. Normally this is done by scoring at least 550 on the TOEFL (or 215 on the computer-based TOEFL).

Doctor of Philosophy

The Ph.D. program places strong emphasis on preparation for research and teaching. The department maintains no division between "pure" and "applicable" mathematics. It cooperates in interdisciplinary doctoral programs with the College of Education and the Program in Applied Mathematical and Computational Sciences.

Ph.D. students in mathematics must satisfy the following requirements for course work (credits and breadth), examinations, foreign language, and the Ph.D. thesis.

Students must earn at least 72 s.h. of graduate credit and spend at least three years in residence at a graduate college, including at least one year at The University of Iowa. They also should enroll in specific courses designated as preparatory for the Ph.D. comprehensive examination (consult the director of graduate studies in mathematics).

To further encourage mathematical breadth, students must earn at least 18 s.h. of graduate credit in regular courses equivalent to or more advanced than the Ph.D. comprehensive examination preparatory courses. The department maintains a list of 200-level and 300-level courses that are accepted, as well as rules to ensure proper distribution.

The Ph.D. comprehensive examination consists of three parts, each a three-hour written exam. Students choose three areas from the department's list of comprehensive examination areas: algebra, analysis, logic, partial differential equations, and topology. For each comprehensive area, there is a two-semester, 200-level course sequence designated as preparatory, although exams may differ from course content. The three parts of the exam may be taken concurrently (all three over a two-week period) or separately (over two or three different semesters).

In the first case, one grade (pass, fail, conditional pass) is given on the whole three-part examination by a committee consisting of six faculty members, two from each area. If the grade is fail, the committee has the option to consider the exams separately, offering the student the option of pass in one or two of the areas and fail in the others.

When the exams are taken separately, the student receives a grade of pass or fail in each area. A passing grade from each examiner in each area is needed to receive a pass in the Ph.D. comprehensive exam, and a maximum of one failure is allowed in each area.

Candidates also take an oral final examination on their dissertation material.

Candidates are required to demonstrate reading proficiency in French, German, or Russian by passing a reading test administered by the appropriate language department, earning a grade of B or higher in the second semester of a sequence offered by the appropriate language department, or passing a special examination approved by the mathematics department graduate committee. Courses that do not carry graduate credit can be used to satisfy this requirement, but they cannot be counted toward the required 72 s.h. of graduate credit. The demonstration of language competence must take place after the student has enrolled in graduate school.

The most distinctive aspect of a Ph.D. is the thesis. The department expects this to be an original mathematical work comparable in content and writing quality to that found in standard published research journals. The thesis is written under the supervision of a member of the department's faculty and is approved by a committee.

Admission

Admission to the Ph.D. program is based on a combination of undergraduate or graduate course work and grades, letters of recommendation, and Graduate Record Examination scores (plus TOEFL scores for international students). See the information on admission to Master of Science programs in this section of the Catalog. The department generally seeks stronger grades and scores for doctoral admission: undergraduate or graduate g.p.a. of at least 3.40, GRE General Test quantitative score of at least 700, and TOEFL score of at least 575 (or 230 on the computer-based test). New graduate students often are admitted as master's candidates even if they intend to go on for a Ph.D.

Courses

For Lower-Division Undergraduates

These courses are not open to graduate students except by special arrangement with the department chair. Credit earned in 22M:001, 22M:002, and 22M:003 cannot be counted toward degree requirements.

*Although the sequences 22M:021 and 22M:022, 22M:025 and 22M:026, and 22M:031 and 22M:032, are similar, they cover the material in a different order and with different emphases. Students must consult with their adviser before taking the second semester of one sequence after taking the first semester of another. Students who consider taking 22M:026 after 22M:011, 22M:016, or 22M:017 must consult with their adviser.

22M:001 Basic Algebra I 3 s.h.

Presents, ratio and proportion, algebraic expressions and operations, simple products, linear and quadratic equations, simultaneous equations, exponents and radicals; emphasis on verbal problems.

22M:002 Basic Algebra II 3 s.h.

Algebraic techniques, equations and inequalities, functions and graphs, exponential and logarithmic functions, systems of equations and inequalities. Prerequisite: 22M:001 or satisfactory score on math placement exam or one year of high school algebra.

22M:003 Basic Geometry 3 s.h.

Angles, triangles, polygons, areas, Pythagorean theorem, similar triangles, circles, locus, related topics. Offered spring semesters. Prerequisite: 22M:001 or satisfactory score on math placement exam or one year of high school algebra.

22M:005 Trigonometry 3 s.h.

Trigonometric functions, solutions of right and oblique triangles, complex numbers. Prerequisite: 22M:002, or satisfactory score on math placement exam, or two years of high school algebra and one year of high school geometry.

22M:006 Logic of Arithmetic 3 s.h.

Mathematical and conceptual foundations of the natural numbers used in elementary school arithmetic teaching; multiple algorithmic approaches to arithmetic and their mathematical and contextual relationships, extensions to integers, rational and irrational numbers, multiple representations. GE: quantitative or formal reasoning. Prerequisite: 22M:005, or satisfactory score on math placement exam or equivalent or consent of instructor.

22M:009 Elementary Functions 4 s.h.

Functions, relations, coordinate systems, properties and graphs of algebraic, trigonometric, logarithmic, exponential functions; inverse trigonometric functions; properties of lines, conic sections. GE: quantitative or formal reasoning. Prerequisite: 22M:009, or satisfactory score on math placement exam or two and a-half years of high school mathematics and one year of high school geometry.

22M:010 Finite Mathematics 4 s.h.

Introduction to logic, set theory, linear equations and inequalities, linear programming, matrix algebra, combinatorial probability. GE: quantitative or formal reasoning. Prerequisite: 22M:002 or satisfactory score on math placement exam or two and one-half years of high school mathematics.

22M:011 Introduction to Calculus with Applications 4 s.h.

Short course in derivatives and integrals with applications. GE: quantitative or formal reasoning. Offered spring semesters. Prerequisite: 22M:002 or satisfactory score on math placement exam or 22M:010 or two and one-half years of high school mathematics.

22M:012 Theory of Arithmetic 3 s.h.

Sets, cardinalities, reasoning in proofs, counterexamples, arithmetic with integers, rationals, irrationals, number theory, functions, algebraic expressions. GE: quantitative or formal reasoning. Prerequisite: 22M:009 or higher or satisfactory score on math placement exam or equivalent or consent of instructor.

22M:013 Mathematics for Business 4 s.h.

Algebraic techniques, functions and functional models, exponential and logarithmic functions and models, linear programming, informal introduction to calculus; examples and
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**For Upper-Division Undergraduates**

Graduate students in mathematics may not receive credit for 22M:100, 22M:104, 22M:105, or 22M:109.

22M:100 Introduction to Ordinary Differential Equations 2-3 s.h.
- First-order ordinary differential equations; second-order linear differential equations; series solutions; higher-order linear and nonlinear differential equations; existence and uniqueness theorems.
- Prerequisites: 22M:027 and 22M:028, or 22M:056 or equivalent; or consent of instructor.

22M:104 Introduction to Matrix Theory 3 s.h.
- Vector algebra and geometry, difference equations, discrete mathematics, and computer arithmetic.
- Prerequisites: 22M:032, or 22M:056 or equivalent; or consent of instructor.

22M:105 Basic Analysis 3 s.h.
- Elementary topological and analytical properties of real numbers; emphasis on ability to handle definitions, theorems, proofs; same material as 22M:055 for non-math graduate students.
- Prerequisites: standing, and one year of calculus, and one semester of linear algebra, or consent of instructor.

22M:106 Transformation Geometry 3 s.h.
- Euclidean geometry through automorphism of the plane; geometry and algebra connected through group structure of important sets of transformations; emphasis on plane isometries, similarities, and problem solving techniques.
- Prerequisite: 22M:050 or equivalent; or consent of instructor.

22M:107 History of Mathematics 3 s.h.
- May include numerical systems; Babylonian, Egyptian, and Greek mathematics; mathematics of other cultures; calculus, 19th and 20th-century mathematics.
- Prerequisite: two semesters of calculus and one semester of linear algebra, or consent of instructor.

22M:108 Philosophy of Mathematics 3 s.h.
- Role of formalism, intuitionism, logicism, Platonism in shaping foundations of mathematics; nature of mathematical existence and truth; Godel's incompleteness theorems; axiom of choice; philosophical differences between various set theories (e.g., Zermelo-Fraenkel, Godel-Von Neumann), category theory, other viable foundations of mathematics; relationship between mathematics, science, and philosophy.
- Prerequisites: two semesters of calculus, and 22M:027 or equivalent; or consent of instructor.

22M:109 Classical Analysis 3 s.h.
- Multivariable calculus, vector functions, line integral, total differentials, gradients, implicit functions, Taylor's expansion, extrema, multiple integrals, vector fields, surface integrals, Stokes' theorem, and line integrals, incompressible fluids, closed contours, and Green's theorem, and probability theory, same as 22M:109.
- Prerequisites: standing, and one year of calculus, and one semester of linear algebra, or consent of instructor.

22M:115 Introduction to Analysis I 3 s.h.
- Sets and functions, sequences and series of real numbers, limits, metric spaces, continuous functions, connectedness, completeness, compactness.
- Prerequisite: 22M:055 or graduate standing or consent of instructor.

22M:116 Introduction to Analysis II 3 s.h.
- Riemann integration, fundamental theorems of calculus, elementary functions, Taylor series, sequences and series of functions, uniform convergence, Picard fixed-point theorem, existence of solutions to differential equations, implicit function theorem.
- Prerequisite: 22M:115 or consent of instructor.

22M:118 Complex Variables 3 s.h.
- Geometry of complex plane, analytic functions, Cauchy-Goursat theorem, applications; Laurent series, residue theory, elementary conformal mapping.
- Prerequisite: 22M:028 or 22M:050 or 22M:109 or equivalent or consent of instructor.

22M:120 Abstract Algebra I 3 s.h.
- Groups, rings, fields, modules, homomorphisms, ideals, polynomials and other basic topics, selected structure theorems.
- Prerequisite: 22M:050 or equivalent or consent of instructor.

22M:121 Abstract Algebra II 3 s.h.
- Continuation of 22M:120.
- Prerequisite: 22M:120 or consent of instructor.

22M:123 Foundations of Set Theory 3 s.h.
- Set theory as used in abstract mathematics; equivalent forms of axioms of choice, cardinal numbers and their arithmetic, ordinal numbers and transfinite induction.
- Prerequisite: 22M:050 or 22M:055 or graduate standing or consent of instructor.

**Elementary Topics of General Interest**

These courses are not open to graduate students except by special arrangement with the department chair.

22M:050 Introduction to Abstract Algebra I 3 s.h.
- Basic logic, proof methods, sets, functions, relations, mathematical induction; gradual transition from familiar number systems to abstract structures—division algorithms, unique factorization theorems; construction of integers, rationals, reals; Euclidean, unique factorization domains, rings, fields.
- Prerequisite: 22M:050 or equivalent; corequisite: 22M:027 or consent of instructor.

22M:055 Fundamental Properties of Spaces and Functions I 3 s.h.
- Elementary topological and analytic properties of real numbers; emphasis on ability to handle definitions, theorems, proofs.
- Prerequisite: second-semester calculus.
- Corequisite: 22M:027 or consent of instructor.

22M:056 Fundamentals Properties of Spaces and Functions II 3 s.h.
- Multivariable analysis; Bolzano-Weierstrass theorem in three-dimensional Euclidean space, calculus, vector calculus, inverse and implicit function theorems, multiple integrals, surface integrals, line integrals, differential forms, and Stokes' theorem in n-dimensional Euclidean space.
- Prerequisites: 22M:055; closed to students who have taken 22M:028.

22M:070 Foundations of Geometry 3 s.h.
- Axiomatic development of common foundation for Euclidean and non-Euclidean geometry; constructions of non-Euclidean models, independence of parallel postulate.
- Prerequisite: 22M:022 or 22M:028 or equivalent; or consent of instructor.

22M:072 Elementary Numerical Analysis 3 s.h.
- Computer arithmetic, root finding, polynomial approximation, numerical integration, systems of linear equations, ordinary differential equations, use of high-level computer language such as Matlab, Maple, Mathematica.
- Prerequisites: grade of C- or higher in 22M:022 or 22M:026 or 22M:032. Same as 22C:072.

22M:081 Geometry for Elementary Teachers 3 s.h.
- Points, lines, planes, measurement, two- and three-dimensional coordinate geometry, coordinate systems, and applications of geometry to solve real-world problems.
- Offered spring semesters.
- Prerequisites: elementary teaching certificate candidacy or elementary teacher certification, and 22M:001 or equivalent.
Prerequisites: 22M:027 and 22M:028, or 22M:037 and polynomial approximation of functions; numerical integration. Root finding for nonlinear equations; polynomial interpolation; 22M:170 Numerical Analysis: Nonlinear Equations and Linear Algebra. May include Riemannian geometry, rigidity theorems, minimal surfaces. Prerequisites: 22M:028 and 22M:055, or 22M:056 or integration of forms, covariant differentiation, intrinsic geometry algorithms, their applications. Prerequisite: 22M:050 or problems; graph colorings, matchings; characterization of families of surfaces. Prerequisite: 22M:027 or 22M:040 or 22M:104 or equivalent or consent of instructor. Connectivity properties, including Euler, Hamilton cycle problems; graph colorings, matchings; characterization of families of graphs such as trees, planar graphs, networks; graph algorithms, their applications. Prerequisite: 22M:050 or equivalent or consent of instructor. Core Graduate Courses 22M:200 Introduction to Differential Topology 3 s.h. Manifolds; functions; tangent bundle, Morse theory, transversality, submanifolds, tubular neighborhoods, normal bundles, vector fields, degree and intersection theory; fixed-point theory, Morse theory. Prerequisite: 22M:201 or equivalent or consent of instructor. 22M:201 Introduction to Algebraic Topology 3 s.h. Homotopy, fundamental group and covering spaces, CW and simplicial complexes, simplical homology, Euler characteristic. Prerequisite: 22M:132 or equivalent or consent of instructor. 22M:203 Topology of Manifolds 3 s.h. Embedding, knotting, immersions; isotopy, homotopy, regular neighborhoods, engulfing, surgery, cobordism; three-, four-, and higher dimensional manifolds. Prerequisites: 22M:200 and 22M:201, or equivalents, or consent of instructor. 22M:205 Introduction to Algebra I 3 s.h. Abstract algebra: semigroups, groups, rings, integral domains, polynomial rings, division rings, fields, vector spaces, matrices, modules over rings, lattices, categories. Prerequisite: 22M:120 or equivalent or consent of instructor. 22M:206 Introduction to Algebra II 3 s.h. Continuation of 22M:205. Prerequisite: 22M:205 or equivalent or consent of instructor. 22M:210 Analysis I 3 s.h. Lebesgue measure and integral, fundamental theorem of calculus, abstract measures and integration, Fubini's theorem, Radon-Nikodym theorem, Riesz representation theorem, Lp spaces. Prerequisite: 22M:116 or equivalent or consent of instructor. 22M:211 Analysis II 3 s.h. Hilbert space, Banach space techniques; Hahn-Banach theorem, open mapping theorem, principle of uniform boundedness; reflexivity, H-spaces, Palley-Wyner theorem, space of functions analytic on the open unit disk. Prerequisites: 22M:118 and 22M:210, or equivalents, or consent of instructor. 22M:213 Ordinary Differential Equations I 3 s.h. Existence, uniqueness, continuous dependence of solutions to initial value problems, autonomous systems, Poincare-Bendixon theory, linear systems and linearizations, perturbation, stability, periodic solutions, bifurcation, comparison and oscillation theories, boundary value problems. Prerequisite: 22M:116 or equivalent or consent of instructor. 22M:214 Ordinary Differential Equations II 3 s.h. Continuation of 22M:213. Prerequisite: 22M:213 or equivalent or consent of instructor. 22M:216 Partial Differential Equations I 3 s.h. Elliptic equations; potential theory, maximum principle, a priori estimate, Dirichlet problem; initial value problem for parabolic equations; hyperbolic equations; Duhamel's principle, Cauchy problem; nonlinear equations, characteristics, canonical form, first-order systems. Prerequisites: 22M:116 or equivalent or consent of instructor. 22M:217 Partial Differential Equations II 3 s.h. Continuation of 22M:216. Prerequisite: 22M:216 or equivalent or consent of instructor. 22M:220 Introduction to Mathematical Logic I 3 s.h. Propositional calculus, first-order predicate calculus, Godel completeness theorem, formal elementary number theory, Godel incompleteness theorem. Prerequisite: graduate standing or consent of instructor. 22M:221 Introduction to Mathematical Logic II 3 s.h. Formal number theory, arithmetic hierarchy, Post theorem, formal recursive functions, Turing machines, Thue systems, world problems. Prerequisite: 22M:220 or equivalent or consent of instructor. 22M:223 Comprehensive Exam Preparation Seminars 0 s.h. Ph.D. comprehensive exam preparation in algebra, analysis, logic, partial differential equations, topology. Repeatable. Prerequisite: consent of instructor.
shape of Banach spaces, nonlinear functional analysis; operators on Hilbert spaces, spectral theorem, algebra of operators. Prerequisite: 22M:211 or equivalent or consent of instructor.

22M:314 Functional Analysis II 3 s.h.
Continuation of 22M:313. Prerequisite: 22M:313 or equivalent or consent of instructor.

22M:321 Topics in Applied Mathematics arr.
Application of mathematics in other disciplines. Repeatable. Prerequisite: consent of instructor.

22M:324 Topics in Partial Differential Equations 2-3 s.h.
Regularity theory, nonlinear analysis in partial differential equations, fluid dynamics, harmonic analysis, conservation laws, other topics. Repeatable. Prerequisite: consent of instructor.

22M:328 Topics in Logic 3 s.h.
Theory of models, recursive functions, sets, deductions. Repeatable. Prerequisite: 22M:221 or equivalent or consent of instructor.

22M:330 Topics in Algebra 2-3 s.h.
May include algebraic number theory, groups, representation theory, algebra, ideal theory, lattice theory. Repeatable. Prerequisite: 22M:206 or equivalent or consent of instructor.

22M:335 Topics in Ring Theory 3 s.h.
Theory of commutative and/or noncommutative rings and their categories of modules. Repeatable. Prerequisite: 22M:206 or equivalent or consent of instructor.

22M:340 Homological Algebra 3 s.h.
Modules, tensor products, groups of homomorphisms, categories, functors, homology functors, projective and injective modules, derived functors, torsion and extension functors, homological dimension. Prerequisite: 22M:206 or equivalent or consent of instructor.

22M:360 Topics in Differential Geometry 3 s.h.
Hodge decomposition theorem for elliptic operators on vector bundles over manifolds, the heat equation in this setting, applications to global geometry and topology; may include additional topics in global Riemannian geometry, index theory. Repeatable. Prerequisite: consent of instructor.

22M:371 Topics in Numerical Analysis 3 s.h.
Repeatable. Prerequisites: 22M:170 and 22M:171, or equivalents, or consent of instructor.

22M:383 Seminar: Commutative Ring Theory arr.
Repeatable. Prerequisite: consent of instructor.

Repeatable. Prerequisite: consent of instructor.

22M:385 Seminar: Representation Theory arr.
Repeatable. Prerequisite: consent of instructor.

22M:386 Seminar in Undergraduate Mathematics Education arr.
Varied topics in teaching, learning, curriculum, philosophy, objectives, strategies, methods, use of technology, group learning, projects, discovery method, multiple approaches, other current issues. Repeatable. Prerequisite: consent of instructor.

Repeatable. Prerequisite: consent of instructor.

Repeatable. Prerequisite: consent of instructor.

Repeatable. Prerequisite: consent of instructor.

Repeatable. Prerequisite: consent of instructor.

Repeatable. Prerequisite: consent of instructor.

22M:393 Seminar: Mathematical Physics arr.
Repeatable. Prerequisite: consent of instructor.

22M:394 Seminar in Mathematical Biology arr.
Repeatable. Prerequisite: consent of instructor.

Repeatable. Prerequisite: consent of instructor.

Repeatable. Prerequisite: consent of instructor.

Repeatable. Prerequisite: consent of instructor.

Repeatable. Prerequisite: consent of instructor.

22M:399 Reading Research arr.
Repeatable. Prerequisite: consent of instructor.

DIVISION OF PERFORMING ARTS
Director: David Nelson (Music)
Undergraduate degree: B.A. in Performing Arts Entrepreneurship

The Division of Performing Arts includes the Department of Dance, the School of Music, and the Department of Theatre Arts. The division fosters interdisciplinary collaboration among these units, coordinates artistic and academic activities, and sponsors a full array of performances and symposia. Performances are supported by professional staff in the division’s Performance Art Production Unit.

The division’s individual academic units offer undergraduate and graduate courses and degree programs in creative, performance, scholarly, and theoretical areas. They present an extensive schedule of dance productions, faculty and student recitals, ensemble concerts, and mainstage and gallery theater productions.

PERFORMING ARTS ENTREPRENEURSHIP
Coordinator: Beverly Everett
Undergraduate degree: B.A. in Performing Arts Entrepreneurship
Web site: http://www.uiowa.edu/~dpa

The Division of Performing Arts, in partnership with the Pappajohn Entrepreneurial Center in the Tippie College of Business, offers a Bachelor of Arts in performing arts entrepreneurship.

The program leading to the B.A. offers students the opportunity to pursue professional studies in two areas of the performing arts, in the framework of a liberal arts education. It also helps them develop the skills required for creating market-based opportunities in the arts.

The program’s focus is not arts management. Rather, the major is intended for students who plan to start or operate their own businesses in the performing arts. The program’s goals are to enhance students’ understanding of the entrepreneurial process in the performing arts and to nurture developing artists who will be leaders in arts innovation.

Bachelor of Arts

The program requires completion of 53-59 s.h. of course work. All students pursuing the major choose a primary area of study in dance, theatre arts, or music. They also choose a secondary area different from their primary area. All students complete three required courses in entrepreneurship, a capstone course, and an internship.

Students may apply a maximum of 24 s.h. earned at other institutions toward the major in performing arts entrepreneurship. In order to be counted toward the major, all transfer course work must be reviewed and approved by the program.

Performing arts entrepreneurship students are advised by the Academic Advising Center until they have earned 24 s.h. Then they are assigned a faculty adviser from their primary area in the Division of Performing Arts as well as an adviser from the Tippie College of Business.

The curriculum is as follows.

PRIMARY AREA

Students complete the requirements for the primary area of their choosing.

Dance Studies

This primary area requires a total of 26 s.h. A placement audition is required. Contact the Department of Dance for more information.

All of these:
137:051/049:045 Production: Run Crew 1 s.h.
137:070 Choreography I 2 s.h.
137:080 Dance and Society 3 s.h.
137:134 Improvisation 2 s.h.
Dance technique (e.g., ballet, modern, tap) 9 s.h.
Dance electives 6 s.h.

One of these:
137:147 Dance Kinesiology 3 s.h.
137:150 Beginning Labanotation 3 s.h.
137:180 Dance History I: Ancient to Enlightenment 3 s.h.
137:181 Dance History II: Romantic to Contemporary 3 s.h.

Theatre Arts

This primary area requires a total of 27 s.h.

All of these:
049:025 Acting I 3 s.h.
049:043 Elements of Design 3 s.h.
049:044 Theatre Crafts 3 s.h.
049:060 Playscript Analysis 3 s.h.
049:112 History of Theatre and Drama I 4 s.h.
049:113 History of Theatre and Drama II 4 s.h.

One of these:
049:045 Production: Run Crew 1 s.h.
049:047 Production: Construction 1 s.h.

One of these:
049:130 Directing I 3 s.h.
049:172 Senior Seminar 3 s.h.
049:194 Dramaturgy 3 s.h.
A playwriting course (049:063 or 049:165) 3 s.h.

One of these:
049:125 Voice for the Actor 3 s.h.
049:127 Theatre Movement 3 s.h.
049:132 Stage Management 3 s.h.
049:133 Theatre Design I 3 s.h.
049:134 Scene Design I 3 s.h.
049:135 Costume Design I 3 s.h.
049:136 Lighting Design I 3 s.h.
049:140 Sound Design for the Theatre 3 s.h.
049:147 Technical Production I 3 s.h.

Music

This primary area requires a total of 26 s.h.

All of these:
025:001 Fundamentals of Music for Majors (unless exempted by proficiency exam) 3 s.h.
025:002 Musicianship and Theory I  4 s.h.
025:003 Musicianship and Theory II  4 s.h.
025:071 Group Instruction in Piano I (unless exempted by proficiency exam)  1 s.h.
025:072 Group Instruction in Piano II (unless exempted by proficiency exam)  1 s.h.
Music history—one of these:
025:103 World Music  3 s.h.
025:104 Music of Latin America and the Caribbean  3 s.h.
025:141 History of Jazz  3 s.h.
025:144 History of Music I  3 s.h.
025:146 History of Music II  3 s.h.
025:178 Music, Culture and Identity  3 s.h.

All of these:
Applied music for lower-level undergraduates (students must audition to be accepted by a professor—register for 2 s.h. each for two semesters)  4 s.h.
Ensemble participation (placement by audition in choral, orchestra, band, or jazz ensembles)  4 s.h.
025:074 Recital Attendance  2 s.h.

Students who are exempted by proficiency exam from 025:001 (3 s.h.), 025:071 (1 s.h.), or 025:072 (1 s.h.) must earn an equal number of semester hours in music electives.

SECONDARY AREA
Students complete the requirements for the secondary area of their choosing.

Dance
This secondary area requires at least 15 s.h. of course work in dance. At least 12 of the 15 s.h. must be earned in University of Iowa courses numbered 137:100 and above. The following courses are suggested.

137:134 Improvisation  2 s.h.
137:080 Dance and Society  3 s.h.
Dance technique  7 s.h.
Dance electives  3 s.h.

Theatre Arts
This secondary area requires at least 15 s.h. of course work in theatre arts, excluding 049:001, 049:002, and 049:003. At least 12 of the 15 s.h. must be earned in University of Iowa courses numbered 049:021, 049:025, 049:043, 049:044, 049:060, 049:062, 049:063, 049:100, and above.

Music
This secondary area requires at least 18 s.h. of course work (15 s.h. for students who are exempted from 025:001 by proficiency exam). The following courses are required.

All of these:
025:001 Fundamentals of Music for Majors (unless exempted by proficiency exam)  3 s.h.
025:002 Musicianship and Theory I  4 s.h.
025:074 Recital Attendance  2 s.h.
Ensemble or applied music courses  3 s.h.
Music electives  3 s.h.

Music history—one of these:
025:103 World Music  3 s.h.
025:104 Music of Latin America and the Caribbean  3 s.h.
025:141 History of Jazz  3 s.h.

025:144 History of Music I  3 s.h.
025:146 History of Music II  3 s.h.

ENTREPRENEURIAL STUDIES
Required courses total 9 s.h., but students also must satisfy the prerequisites to the required courses.
Prerequisites—may be taken through Guided Independent Study:
061T:113 Basics of Small Business Accounting  1 s.h.
061T:116 Basics of Small Business Marketing  1 s.h.

Required courses:
061T:120 Entrepreneurship and New Business Formation  3 s.h.
061T:133 Capital Acquisition and Cash Flow Management  3 s.h.
061T:134 Entrepreneurial Marketing  3 s.h.

CAPSTONE COURSE
049:175/025:176 Nonprofit Organizational Effectiveness I  3 s.h.
or
033:161 The Arts in Performance  3 s.h.

Four-Year Graduation Plan
The Four-Year Graduation Plan is not available to students pursing the performing arts entrepreneurship major. Many students need an extra semester to complete the internship requirement. But some students may be able to graduate in four years by taking summer course work or a summer internship. Advisers work with students to develop individual graduation plans.

Honors
Students who are members of the University Honors Program, have a g.p.a. of at least 3.33 in the major, and have approval from their primary adviser may undertake an honors project. Projects may be analytical, creative, or a combination of both. They must orally present or perform an oral presentation or performance for designated faculty members as well as a research and writing component, which is due upon the project’s completion.
Performing arts entrepreneurship majors who are members of the University Honors Program may take honors courses in their primary and secondary areas. Courses can be designated honors courses with permission of the faculty member who teaches the course, the department offering the course, and the University Honors Program.
Members of the University Honors Program must maintain a cumulative g.p.a. of at least 3.33 (contact the University Honors Program for more information).

Performing Arts Learning Community
First-year students majoring in performing arts entrepreneurship may apply to live in the Performing Arts Learning Community, a coed floor in Currier Hall, across the Iowa River from the fine arts campus. The community includes students from art and art history, dance, film, music, and theatre arts.

Courses
188:001 Cultural Connections  1 s.h.
Forum for an interdisciplinary perspective on culture; exposure to all art forms; class time presentations of live music, dance, and theater performances or rehearsals in conjunction with film and art.

188:182 Historical Perspectives in Dance  3 s.h. Same as 137:182.

DANCE
Chair: Alan Sener
Professor: Basil Thompson
Professor emerita: Françoise Martinek
Associate professors: Charlotte Adams, Armando Duarte, Alan Sener
Associate professors emeritus: Alicia Brown, Helen Chadima, Linda A. Crit
Assistant professors: Deanna Carter, Rebekah Kowal
Adjunct assistant professors: Paul Cunliffe, Gary N. Holmquist, Lily Juracek
Lecturer: Jim Albert
Undergraduate degrees: B.A., B.F.A. in Dance
Undergraduate nondegree program: minor in Dance
Graduate degree: M.F.A. in Dance
Web site: http://www.uiowa.edu/~dance

Undergraduate Programs
The undergraduate major in dance provides a liberal arts and sciences education and thorough preparation for careers in professional dance, choreography, and education, as well as preparation for graduate studies. The department offers as many as 12 concerts every year, providing dance students with numerous opportunities for performance and choreography. Periodic master classes with noted guest teachers, choreographers, and touring companies add diversity to the dance experience. The University of Iowa Dance Company performs its annual Dance Gala in Hancher Auditorium on the University of Iowa campus, and since 1986, the department’s touring company, Dancers In Company, has given students an opportunity to perform in Iowa and surrounding states. Dance faculty members regularly present their choreography in national venues, giving University student performers the opportunity to develop their performance skills.
The Department of Dance also participates in offering the major in performing arts entrepreneurship, offered through the Division of Performing Arts in cooperation with the John Pappajohn Entrepreneurial Center of the Tippie College of Business. For more information, see the Performing Arts Entrepreneurship section of the Catalog.
Bachelor of Arts

The B.A. program in dance is designed for students who want to acquire a strong liberal arts and sciences background while pursuing a comprehensive undergraduate dance education. The degree stresses performance and choreography as well as dance theory courses, including Labanotation, dance history, dance kinesiology, and dance production.

Students must audition for placement in dance classes before registration. No student is admitted to the dance major without a placement audition. Students are encouraged to audition on campus for class placement and scholarship in the semester before entry to the University. Those who cannot come to campus for a placement audition may send an audition videotape. Contact the department, the undergraduate dance coordinator, or the Office of Admissions for additional information.

To graduate, students must complete 50 s.h. in dance courses, including two semesters of 137:113 Major Ballet II or 137:114 Major Modern Dance II with a grade of B- or higher. Two semesters of 137:123 Major Ballet III or 137:124 Major Modern Dance III also satisfy this requirement. A maximum of 50 s.h. in dance department courses is accepted toward the 120 s.h. required for graduation. At least half of all semester hours in the major must be earned at the University of Iowa.

Required Courses

Students who select cross-referenced non-dance department courses to satisfy the core course requirements must take additional dance department electives to complete the required 50 s.h. in dance department courses.

**CORE COURSES**

- 027:053 Human Anatomy 3 s.h.
- 137:040 Introduction to Dance 1 s.h.
- 137:050 Dance Production 3 s.h.
- 025:010 Fundamentals of Music or 027:053 Human Anatomy 3 s.h.
- 137:060 Music Fundamentals in Dance (preferred) 2 s.h.
- 049:045 Production: Run Crew (2 s.h. are required) 1-2 s.h.
- 137:051 Production: Run Crew (2 s.h. are required) 1-2 s.h.
- 137:080 Dance and Society 3 s.h.
- 137:147/049:108 Dance Kinesiology 3 s.h.
- 137:150 Beginning Labanotation 3 s.h.
- 137:180 Dance History I: Ancient to Enlightenment 3 s.h.
- 137:181 Dance History II: Romantic to Contemporary 3 s.h.

**STUDIO COURSES**

- 137:070 Choreography I 2 s.h.
- 137:071 Choreography II 2 s.h.
- 137:134 Improvisation 2 s.h.

**DANCE TECHNIQUE**

Dance majors must take 6 s.h. each of ballet and of modern dance technique; students choose 20 s.h. from the following. All courses may be repeated.

- 137:022 Low Intermediate Jazz 2 s.h.
- 137:023 Low Intermediate Ballet 2 s.h.
- 137:024 Low Intermediate Modern 2 s.h.
- 137:103 Major Ballet I 1-2 s.h.
- 137:104 Major Modern Dance I 1-2 s.h.
- 137:113 Major Ballet III 1-3 s.h.
- 137:114 Major Modern Dance II 1-3 s.h.
- 137:122 Advanced Jazz Dance 2 s.h.
- 137:123 Major Ballet III 1-3 s.h.
- 137:124 Major Modern Dance III 1-3 s.h.
- 137:133 Ballet Pointe 1 s.h.

**DANCE ELECTIVES**

Credit earned in dance courses (prefix 137) that is not used to satisfy core, studio, or dance technique degree requirements is counted toward the dance elective requirement. Dance electives complete the 50 s.h. of dance courses required for the Bachelor of Arts.

The required number of semester hours in dance electives varies depending on whether the student completes the core with dance courses or with cross-referenced courses from another department, or has a core requirement waived.

Bachelor of Fine Arts

In contrast to the B.A., the B.F.A. degree emphasizes choreography and performance through an additional 12 s.h. of choreography, performance, and technique. Students may be admitted to the B.F.A. program after they have completed a minimum of 30 s.h. at The University of Iowa. Students who have achieved the equivalent of “Major II” technique and who show academic and professional promise are selected by department faculty for admission to the program.

B.F.A. students must complete three semesters of 137:123 Major Ballet III or 137:124 Major Modern Dance III with a grade of B or higher. B.F.A. students are required to maintain a cumulative g.p.a. of at least 3.50 in dance department courses.

The B.F.A. requires that the 120 s.h. required for graduation include 58 s.h. in courses taken outside the department and 62 s.h. in dance department courses. At least half of all semester hours in the major must be earned at The University of Iowa.

Required Courses

Students who select cross-referenced non-dance department courses to satisfy the core course requirements must take additional dance department electives to complete the required 62 s.h. in dance department courses.

**CORE COURSES**

- 027:053 Human Anatomy 3 s.h.
- 137:040 Introduction to Dance 1 s.h.
- 137:050 Dance Production 3 s.h.
- 025:010 Fundamentals of Music or 137:060 Music Fundamentals in Dance (preferred) 2 s.h.
- 049:045 Production: Run Crew (2 s.h. are required) 1-2 s.h.
- 137:051 Production: Run Crew (2 s.h. are required) 1-2 s.h.

**STUDIO COURSES**

- 137:070 Choreography I 2 s.h.
- 137:071 Choreography II 2 s.h.
- 137:134 Improvisation 2 s.h.

**DANCE TECHNIQUE**

Dance majors must take 6 s.h. each of ballet and of modern dance technique; students choose 20 s.h. from the following. All courses may be repeated.

- 137:022 Low Intermediate Jazz 2 s.h.
- 137:023 Low Intermediate Ballet 2 s.h.
- 137:024 Low Intermediate Modern 2 s.h.
- 137:103 Major Ballet I 1-2 s.h.
- 137:104 Major Modern Dance I 1-2 s.h.
- 137:113 Major Ballet III 1-3 s.h.
- 137:114 Major Modern Dance II 1-3 s.h.
- 137:122 Advanced Jazz Dance 2 s.h.
- 137:123 Major Ballet III 1-3 s.h.
- 137:124 Major Modern Dance III 1-3 s.h.
- 137:133 Ballet Pointe 1 s.h.

**DANCE ELECTIVES**

Credit earned in dance courses (prefix 137) that is not used to satisfy core, studio, or dance technique degree requirements is counted toward the dance elective requirement. Dance electives complete the 62 s.h. of dance courses required for the Bachelor of Fine Arts.

The required number of semester hours in dance electives varies depending on whether the student completes the core with dance courses or with cross-referenced courses from another department, or has a core requirement waived.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.) B.A. degrees require a total of 50 s.h. of dance major credit; B.F.A. degrees require a total of 62 s.h. of dance major credit. Course work in dance beyond these limits does not apply toward semester hours required for graduation. These checkpoints indicate the range of semester hours required.

**Before the third semester begins:** 12-16 s.h. of courses in the major and at least one-quarter of the semester hours required for graduation

**Before the fifth semester begins:** 24-32 s.h. of courses in the major and at least one-half of the semester hours required for graduation
Before the seventh semester begins: 36-48 s.h. of courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: 42-50 s.h. of courses in the major

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

Honors Program

In order to pursue honors studies in the Department of Dance, a student must be a member of the University Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information). The honors program in dance is designed to serve and recognize outstanding students in the areas of choreography, performance, and special projects. It requires 8-10 s.h.

To complete the honors program in dance, students must take two courses for honors credit and complete an honors project. All honors projects must be approved by the dance department faculty.

Minor

A minor in dance requires 15 s.h. of credit in dance department courses with a g.p.a. of 2.00 or higher. At least 12 s.h. must be in University of Iowa courses numbered 137:100 and above. Students contemplating a minor in dance should attend a placement audition. Auditions are offered in November and March.

Graduate Program

Master of Fine Arts

Students who demonstrate accomplishment in dance performance and/or choreography may apply for admission to the M.F.A. program. Admission is based on an interview, a teaching and technique audition, review of videotaped choreographic and performance work, and letters of recommendation. The M.F.A. program is designed to be completed in four to six semesters in residence.

Students select the choreography or the performance track before they are admitted. A total of 60 s.h. is required.

Prerequisites

Advanced technique (ballet or modern) Demonstrated accomplishment in performance or choreography

Required Courses

DANCE CORE

A total of 19 s.h. of core course work is required for both the performance and the choreography track.

137:143 Elementary Ballet Pedagogy or 3 s.h.
137:144 Teaching of Modern Dance 3 s.h.
137:200 Graduate Seminar in Dance 2 s.h.
137:201 Graduate Production Practicum 1 s.h.
137:202 Theories of Dance and the Body 3 s.h.
137:234 Graduate Improvisation 2 s.h.
137:277 Thesis 8 s.h.

DANCE TECHNIQUE

The performance track requires 18 s.h. from the following, the choreography track requires 12 s.h.; courses may be repeated. Performance track students must take a minimum of 4 s.h. of modern dance and 4 s.h. of ballet.

137:103 Major Ballet I 1-2 s.h.
137:104 Major Modern Dance I 1-2 s.h.
137:213 Graduate Majors Ballet II 1-3 s.h.
137:214 Graduate Majors Modern II 1-3 s.h.
137:223 Graduate Majors Ballet III 1-3 s.h.
137:224 Graduate Majors Modern III 1-3 s.h.

EMPHASIS COURSES

A total of 14 s.h. is required for both the choreography and the performance track.

Choreography Track

137:206 Graduate Dance Performance (1 s.h. for each of two performances) 1 s.h.
137:274 Graduate Independent Choreography (1 s.h. for each project, for a total of 4 s.h.) 1 s.h.

A total of 8 s.h. from these:
137:270 Graduate Choreography I 2 s.h.
137:271 Graduate Choreography II 2 s.h.
137:272 Graduate Choreography III 2 s.h.
137:273 Graduate Choreography IV 2 s.h.
137:275 Advanced Choreographic Design 1-4 s.h.

Performance Track

M.F.A. performance track candidates must earn 12 s.h. in performance courses and 2 s.h. in choreography courses.

137:107 Repertory Dance Company (1-8 s.h.) 1-4 s.h.
137:206 Graduate Dance Performance (4-12 s.h.) 1 s.h.
137:274 Graduate Independent Choreography (1 s.h. for each of two projects) 1 s.h.
or
A course from the choreography sequence (137:270-137:273) 2 s.h.

ELECTIVES

M.F.A. candidates in performance must earn a total of 9 s.h. in elective courses numbered 100 or higher. A minimum of 6 s.h. must be earned in nondepartmental courses; the remaining 3 s.h. may be earned in dance or nondepartmental courses.

M.F.A. candidates in choreography must earn a total of 15 s.h. in elective courses numbered 100 or higher. A minimum of 6 s.h. must be earned in nondepartmental courses; 6 s.h. must be earned in a course or courses that provide research material for the thesis; the remaining 3 s.h. may be earned in dance or nondepartmental courses.

Facilities

The Dance Department houses six technique studios, a movement training lab, a video-viewing and Labanotation computer room, and its own theater for dance concerts. Hancher Auditorium, the University's premier performance hall, is the site of the annual Dance Gala.

Courses

Primarily for Undergraduates

137:001 Beginning Tap 1-2 s.h.
Elementary techniques; feet, and performance skills for rhythm and show tap. Entrance by auditions or permission of instructor. GE: fine arts.

137:002 Beginning Jazz 1-2 s.h.
Basic movement fundamentals, rhythm and style; variation in jazz style, including musicality, flexibility, anticipation, and character. GE: fine arts.

137:004 Beginning Modern Dance 1-2 s.h.
Basic movement fundamentals, rhythm and style; variation in modern dance style, including musicality, flexibility, anticipation, and character. GE: fine arts.

137:012 Continuing Jazz 1-2 s.h.
Continuation of 137:001; skills necessary for the technique and performance of jazz dance; enhancement of flexibility, strength, body alignment, coordination, balance, kinesthetic awareness, personal range of motion, and musicality; barre and center combinations; may include history of jazz dance. GE: fine arts.

137:013 Continuing Ballet 1-2 s.h.
Continuation of 137:003; skills necessary for the technique and performance of ballet; enhancement of flexibility, strength, body alignment, coordination, balance, kinesthetic awareness, personal range of motion, and musicality; barre and center combinations; may include history of ballet. GE: fine arts.

137:022 Low Intermediate Jazz 1-2 s.h.
Low intermediate technique and performance training in jazz dance; flexibility, strength, body alignment, and coordination as foundation for more advanced dance artistry, including musicality, style; warm-up, locomotion, center combinations; may include history of jazz dance. GE: fine arts.

137:023 Low Intermediate Ballet 1-2 s.h.
Low intermediate technique and performance training in ballet; flexibility, strength, body alignment, and coordination as foundation for more advanced dance artistry, including musicality, style; warm-up, locomotion, center combinations; may include history of ballet. GE: fine arts.

137:024 Low Intermediate Modern 1-2 s.h.
Low intermediate technique and performance training in modern dance; enhancement of flexibility, strength, body alignment, and coordination as foundation for more advanced dance artistry, including musicality, style; warm-up, locomotion, center combinations; may include history of modern dance. GE: fine arts.

137:025 Intermediate Jazz 1-2 s.h.
Intermediate technique and performance training in jazz dance; flexibility, strength, body alignment, and coordination as foundation for more advanced dance artistry, including musicality, style; warm-up, locomotion, center combinations; may include history of jazz dance. GE: fine arts.

137:026 Intermediate Ballet 1-2 s.h.
Intermediate technique and performance training in ballet; flexibility, strength, body alignment, and coordination as foundation for more advanced dance artistry, including musicality, style; warm-up, locomotion, center combinations; may include history of ballet. GE: fine arts.

137:027 Intermediate Modern 1-2 s.h.
Intermediate technique and performance training in modern dance; enhancement of flexibility, strength, body alignment, and coordination as foundation for more advanced dance artistry, including musicality, style; warm-up, locomotion, center combinations; may include history of modern dance. GE: fine arts.

137:047 Advanced Jazz 1-2 s.h.
Advanced jazz technique and performance training in jazz dance; flexibility, strength, body alignment, and coordination as foundation for advanced dance artistry, including musicality, style; warm-up, locomotion, center combinations; may include history of jazz dance. GE: fine arts.

137:048 Advanced Modern 1-2 s.h.
Advanced modern technique and performance training in modern dance; enhancement of flexibility, strength, body alignment, and coordination as foundation for advanced dance artistry, including musicality, style; warm-up, locomotion, center combinations; may include history of modern dance. GE: fine arts.
137:030 Beginning Pointe 1 s.h.
Basic techniques and exercises for ballet pointe; repetition and analysis of steps and combinations; assimilation of new material; barre and center exercises, pirouettes and turns commonly performed; learning and performing variations drawn from repertory. Prerequisite: previous ballet training and experience.

137:034 Beginning Contact Improvisation 1-2 s.h.
Concepts for contact improvisation, such as shared weight, support, counterweight, elementary partnering, for dancers exploring movement potential and improvisational techniques.

137:040 Introduction to Dance 1 s.h.
Dance careers; current dance issues; viewing and response to dance works; introduction to the Department of Dance and the arts at The University of Iowa.

137:050 Dance Production 3 s.h.
Scenic design, costume, lighting, audio/video, publicity; visits by professional guest lecturers, field trips to creative shops, projects.

137:051 Production: Run Crew 1-2 s.h.
Hands-on experience in production work for live performance; work as run-crew staff for departmental productions. Same as 049:045.

137:060 Music Fundamentals in Dance 2 s.h.
Relationship between dance and music; basic musical concepts, including rhythm, melody, major and minor scales, key signatures and intervals, modes, seventh chords, tonality; concepts experienced through free and guided movement exploration and improvisation; visits by performers and presenters.

137:070 Choreography I 2 s.h.
Elementary skills used to explore choreographic process and form short dance works.

137:071 Choreography II 2 s.h.
Continuation of 137:070; development of choreographic skills through elements of movement at intermediate level; emphasis on personal discovery and invention through improvisation and creation of compositional studies.

137:080 Dance and Society 3 s.h.
Role of dance and other forms of physical culture in nations worldwide, including the United States, Brazil, West Africa, Japan, France, Germany; relationships between dance and culture (e.g., function of dance in spiritual, celebratory, social, political contexts) examined through ethnographic techniques; exchange of dance forms and ideas about the body from old to new worlds and back; aesthetic issues related to concert dance (e.g., performance, choreography, spectatorship, criticism, production). GE: fine arts or humanities.

137:103 Major Ballet I 1-2 s.h.
Builds on 137:023; intermediate technical and performance training in ballet; flexibility, strength, body alignment, and coordination as foundation for introduction of more advanced aspects of dance artistry, including steps, musicality, mobility, balance; terminology related to barre and center vocabulary; including steps, body positions, and arm positions; practice of steps and combinations, variations in timing, changes of facing. GE: fine arts. Prerequisite: consent of instructor.

137:104 Major Modern Dance I 1-2 s.h.
Builds on 137:024; intermediate technical and performance training in modern dance; physical and mental skills for transition to more advanced dance—physical stamina, strength, flexibility, articulation, coordination, musicality, phrasing; basic physical concepts underlying clear and efficient movement; assimilation of new movement material; awareness of the center of gravity and its role in mobilization and control of the body. Repeatable.

137:114 Major Modern Dance II 1-3 s.h.
High intermediate technical and performance training in modern dance; physical and mental skills necessary for more advanced work—physical stamina, strength, flexibility, articulation, coordination, musicality, phrasing, basic physical concepts underlying clear and efficient movement, capacity to assimilate new movement material, awareness of the center of gravity and its role in mobilization and control of the body; consciousness of personal movement capacities and expressive range. GE: fine arts. Prerequisite: consent of instructor.

137:122 Advanced Jazz Dance 2 s.h.
Integration of traditional and contemporary jazz movements, styles, and technical training; movement styles ranging from African American social, modern, and jazz forms to traditional musical theatre dance; emphasis on integration of modern and ballet techniques; exploration of artistry through jazz combinations requiring expressive performance skills. Prerequisite: consent of instructor.

137:123 Major Ballet III 1-3 s.h.
Advanced technical training in ballet technique and performance; physical and mental skills necessary for professional work—physical stamina, strength, flexibility, articulation, coordination, musicality, phrasing, basic physical concepts underlying clear and efficient movement, capacity to assimilate new movement material, awareness of the center of gravity and its role in mobilization and control of the body. GE: fine arts. Prerequisite: consent of instructor.

137:124 Major Modern Dance III 1-3 s.h.
Advanced technical and performance training in modern dance; physical and mental skills necessary for professional work—physical stamina, strength, flexibility, articulation, coordination, musicality, phrasing, basic physical concepts underlying clear and efficient movement, capacity to assimilate new movement material, awareness of the center of gravity and its role in mobilization and control of the body, consciousness of personal movement choices and expressive range; may include partnering exercises for investigation of weight exchange, timing, expressivity. GE: fine arts. Prerequisite: consent of instructor.

137:133 Ballet Pointe 1-2 s.h.
Intermediate/advanced techniques and training for ballet pointe work; repetition and analysis of steps and combinations, assimilation of new material; barre and center exercises, pirouettes and turns commonly performed en pointe, learning and performing variations drawn from repertory. Prerequisite: consent of instructor.

137:134 Improvisation 1-2 s.h.
Cultivation of creative freedom through the use and invention of movement; broadening of dancer’s range of expression through awareness of personal movement capacity; sense of spontaneity and imagination, ability to make and commit to movement choices; new approaches to moving and thinking about elements of movement such as time, space, shape, motion, qualities, and dynamics. Prerequisite: consent of instructor.

137:135 Pas de Deux 1 s.h.
Basic of partnering, techniques for coordination between partners, including support, weight transfer, movement, supported pointe work, lifts, variations of turns. Prerequisites: 137:133 for women and consent of instructor.

137:136 Character Dance 1 s.h.
Steps, style, and temperament of theatrical character dancing; distinctive elements of various Eastern European countries when applied to the stage; barre and center exercises, steps and patterns associated with the Mazurka, Gwarda, Polka, Gopak.

137:140 Honors Project in Dance 3 s.h.
Research, choreographic reconstruction, or performance project under guidance of a faculty adviser. Prerequisite: senior standing.

137:143 Elementary Ballet Pedagogy 3 s.h.
Methods, materials, concepts for teaching ballet techniques.

137:144 Teaching of Modern Dance 3 s.h.
Practices of teaching modern dance; information and experience for teaching and influencing personal movement choices; articulation of sophisticated and/or concert adjudication.

137:147 Dance Kinesiology 3 s.h.
Body movement related to demands of dance; structural and muscular analysis, stability, strength, flexibility, articulation, coordination, movement, and prevention of injuries; investigation of skeletal and ligamentous structure for working knowledge of how the body produces movement; joint actions and restrictions, common injuries to those sites; attachments of the voluntary muscles, pathways and potential actions; neuromuscular analysis of an action; ideal skeletal alignment and its capacity to affect movement performance. Prerequisite: 027:053. Same as 049:108.

137:149 Honors Studies in Dance 3.5 s.h.
Choreography, performance, labanotation, dance history, or pedagogy. Prerequisite: 3.33 g.p.a.

137:150 Beginning Labanotation 3 s.h.
Theory, practice of Laban’s principles of movement notation.

137:160 Movement for Performers 2-3 s.h.
Same as 025:167, 049:160.

137:170 Choreography I 2 s.h.
Third semester; choreographic concepts, process, composition.

137:171 Choreography IV 2 s.h.
Advanced choreographic concepts, methods, applications; the choreographic process and how it relates to other artistic practices in the performing arts; creative ideas, movement concepts, choreographic statements; creation of an extended dance work that gives form and shape to an idea and generates a response from viewers.

137:172 Independent Choreography arr.
Credit for creation of independent choreographic project, developed and guided by a faculty adviser that results in production of a dance work. Prerequisite: consent of faculty project adviser.

137:174 Afro-Cuban Drum and Dance Ensemble 1 s.h.
Dancing, drumming, and/or the musical dialect of several folktoric and ceremonial Afro-Cuban forms. Prerequisite: consent of instructor. Same as 025:173.

137:180 Dance History I: Ancient to Enlightenment 3 s.h.
Developments in dance from the beginning of recorded history to 1800; ruins in tablet and prehistoric societies; dance, theater, and spectacles in ancient Greece and Rome; dance and celebration in European and Asian feudal systems and courts; dance in the new world (colonial) United States and Latin America.

137:181 Dance History II: Romantic to Contemporary 3 s.h.
Dance history in the 19th and 20th centuries; changes in dance training and technique, theory, composition, performance practices in context of broader social, political, and cultural trends; how dance and choreographic practices have changed over time, relationships between social ideas about embodiment and production of dance forms, precedents for contemporary dance practices in past forms.

137:182 Historical Perspectives in Dance 3 s.h.
Contemporary dance scene; careers and work of Mark Morris, Trisha Brown, Twyla Tharp, Bill T. Jones, Paul Taylor, Merce Cunningham, Pina Bausch, William Forsythe, Jowei Willa Jo Zollar, Anna Halprin, Miguel Gutierrez; (auto)biographies, sitesite/sight of performance (venue and vantage point), reading (interpretation, including historical, political, and social implications), new ways of looking at and thinking about contemporary dance, artistic trends, directions for choreographic production. Same as 188:182.

137:190 Independent Study arr.
Credit for an individual student-designed project coordinated with a faculty adviser. Prerequisites: sophomore standing or higher and consent of instructor.

Primarily for Graduate Students

137:200 Graduate Seminar in Dance 2 s.h.
Research, careers, administrative and educational topics.

137:201 Graduate Production Practicum 1 s.h.
Scenery and costume design, lighting, audio/video, publicity.

137:202 Theories of Dance and the Body 3 s.h.
Theoretical trends in dance and physical bodies; performative and choreographic aspects of being.

137:206 Graduate Dance Performance 0-1 s.h.
Credit for rehearsal hours and performance of dance works in produced dance concerts. Prerequisite: audition and/or concert adjudication.

137:213 Graduate Majors Ballet II 1-3 s.h.
High intermediate technical and performance training; physical and mental skills necessary for more advanced work—physical stamina, strength, flexibility, articulation, coordination, musicality, phrasing, basic physical concepts underlying clear and efficient movement, capacity to assimilate new movement material, awareness of the center of gravity and its role in mobilization and control of the body. Repeatable.

137:214 Graduate Majors Modern II 1-3 s.h.
High intermediate technical and performance training in modern dance; physical and mental skills necessary for more advanced work—physical stamina, strength, flexibility, articulation, coordination, musicality, phrasing, basic physical concepts underlying clear and efficient movement, capacity to assimilate new movement material, awareness of the center of gravity and its role in mobilization and control of the body. Repeatable.
its role in mobilization and control of the body, consciousness of personal movement choices and expressive range. Repeatable.

137:223 Graduate Majors Ballet III 1-3 s.h.
Advanced technical and performance training for proficient dancers; physical and mental skills necessary for professional work—physical stamina, strength, flexibility, articulation, coordination, musicality, phrasing, understanding of basic physical concepts underlying clear and efficient movement, capacity to assimilate new movement material, awareness of the center of gravity and its role in mobilization and control of the body. Repeatable.

137:224 Graduate Majors Modern III 1-3 s.h.
Advanced technical and performance training in modern dance; physical and mental skills necessary for professional work—physical stamina, strength, flexibility, articulation, coordination, musicality, phrasing, understanding of basic physical concepts underlying clear and efficient movement, capacity to assimilate new movement material, awareness of the center of gravity and its role in mobilization and control of the body, consciousness of personal movement choices and expressive range. Repeatable.

137:234 Graduate Improvisation 1-2 s.h.
137:270 Graduate Choreography I 2 s.h.
The craft of choreography and the creative process; elements of gesture, motion, shape, space, form; vocabulary for discussing and analyzing choreographic works; enhancement of ability to invent and develop movement ideas.

137:271 Graduate Choreography II 2 s.h.
137:272 Graduate Choreography III 2 s.h.
Advanced choreographic concepts, methods, and applications with focus on the creative mind and choreographic process; concepts and experiences that support development of advanced choreographic skills and innovative dances.

137:273 Graduate Choreography IV 2 s.h.
137:274 Graduate Independent Choreography arr.
Credit for creation of an independent choreographic project, developed under guidance of faculty adviser, that results in production of a dance work. Prerequisite: consent of faculty project adviser.

137:275 Advanced Choreographic Design 0-4 s.h.
Collaborative experience with advanced artists from varied disciplines that culminates in a final performance; emphasis on sharing and investigating ideas, artistic intent, personal vision, and creating collaborative projects.

137:277 Thesis arr.
137:290 Graduate Independent Study arr.
Credit for individually designed project coordinated with a faculty adviser. Prerequisite: consent of faculty project adviser.

Rachel Joselson, John Manning, Gregory Marton, John Martello, Ksenia Nosikova, Volkan Orhan, Leslie Sprout, Tamara Thewatt, Kenneth Tse

Adjunct assistant professors: Joel Boyer, James Dreier, Steven Grismore, Robert Paredes, Brent Sandy, Rachelle Tachoir, Joye Walker

Lecturers: Amy Appold, Margaret Soper Gutierrez, Hannah Holman, Elizabeth Oakes, Susan Jones, Shari Rhoads

Undergraduate degrees: B.A. in Music; B.M. Undergraduate nondegree program: minor in Music Graduate degrees: M.A., M.F.A., Ph.D. in Music; D.M.A. Graduate nondegree program: certificate in Sacred Music

Web site: http://www.uiowa.edu/~music

The University of Iowa School of Music is prominent in a fine arts community of international repute. It has long been recognized as one of the excellent university-based schools of music in the United States.

The school’s on-campus enrollment of approximately 450 music majors is large enough to sustain strong programs in all areas of specialization, yet small enough to ensure the individual attention essential to each student’s development.

The faculty consists of highly trained artist-teachers in each area of specialization and scholars of international distinction. Faculty ensembles in residence include the Iowa Woodwind Quintet, the Iowa Brass Quintet, and the Mafa String Quartet. Private lessons with faculty members are offered in all band and orchestra instruments, voice, piano, and organ.

The school’s undergraduate curricula offer all qualified students, whether music majors or nonmajors, the opportunity for further study of music. In addition to its comprehensive course offerings for majors, the school provides a substantial selection of courses especially recommended for nonmajors (see “Music for Nonmajors”).

The graduate curricula are designed primarily as preparation for teaching in secondary schools, colleges, and universities and for careers in performance and music therapy.

The School of Music is a charter member of the National Association of Schools of Music. The requirements for entrance and for graduation are in accordance with the published standards of the National Association of Schools of Music.

 Bachelor of Music

GENERAL COURSE REQUIREMENTS

All Bachelor of Music candidates must complete the College of Liberal Arts and Sciences General Education Program as well as the following School of Music course requirements.

025:001 Fundamentals of Music for Majors (or successful completion of the undergraduate theory examination) 3 s.h.
025:002-025:005 Musicianship and Theory I-IV 16 s.h.
025:071-025:072 Group Instruction in Piano I-II (or successful completion of proficiency exams I and II) 2 s.h.

Registration in Group Instruction in Piano I-II is corequisite with 025:002-025:003 Musicianship and Theory I and II, unless exempted by proficiency exam. Transfer students should complete this requirement in their first year of residence, unless exempted by proficiency exam.
025:074 Recital Attendance 7 s.h.

Seven semesters of 025:074 are required for all candidates for the B.M. degree, except music therapy students, who are required to take four semesters. Transfer students should plan to enroll in this course each of their remaining semesters.
025:107 Techniques of Conducting 2 s.h.
025:144 History of Music I (western music of the Middle Ages, Renaissance, and Baroque) 3 s.h.
025:146 History of Music II (western music 1750-present) 3 s.h.
025:154 Senior Recital 1 s.h.

To complete the senior recital, students must have achieved upper-level applied status or be enrolled in upper-level applied music courses (see “Applied Music”). Music therapy students may complete either a senior recital or a senior research project. Composition and music history students substitute 025:099 Bachelor’s Thesis for the senior recital. The senior recital, research project, or thesis must be completed at The University of Iowa.

One of these:
025:103 World Music 3 s.h.
025:104 Music of Latin America and the Caribbean 3 s.h.
025:141 History of Jazz 3 s.h.
025:178 Music, Culture, and Identity 3 s.h.
At least 4 s.h. from these:

025:101 Introduction to Improvisation 3 s.h.
025:102 Jazz Improvisation 2 s.h.
025:117 Arranging for Band 2 s.h.
025:118 Jazz Theory 2 s.h.
025:145 Counterpoint Before 1600 3 s.h.
025:147 Counterpoint After 1600 3 s.h.
025:148 Instrumentation 2 s.h.
025:153 Keyboard Harmony 2 s.h.
025:155 Composition 2 s.h.
025:157 Orchestration 2 s.h.
025:243 Advanced Jazz Improvisation 2 s.h.
025:244 Transcription 2 s.h.
025:247 Analysis of Music Literature 1890-present 3 s.h.
025:249 Analysis of Tonal Music 3 s.h.
025:256 Analysis of Music Literature: Special Topics 3 s.h.

APPLIED MUSIC

Four years of applied music are required. Instruction is separated into two levels, lower and upper. Students must achieve upper-level status before they may present the senior recital. Readiness for upper-level applied music is determined in the student’s areas of instruction, usually by a jury examination in the area. The eighth semester of applied music may be waived for students who are enrolled in the teacher education program and are student teaching. Students are allowed a maximum of six semesters (not including summer) in lower-level applied instruction. Those who want to continue lessons beyond the maximum allowable lower-level registration must do so under the nonmajor category.

Music therapy students who complete a senior research project rather than a senior recital are required to take three years of lower-level applied music.

ENSEMBLE PARTICIPATION

Eight semesters of major ensemble participation are required. Students normally enroll in major ensemble participation during consecutive semesters, beginning early in their degree work, to ensure completion of the requirement in a timely manner. Ensemble assignments are made at the discretion of the major teacher and ensemble director. String students participate in University Orchestra and Chamber Orchestra. Wind and percussion students participate in the Symphony Band/Concert Band/University Band. Voice students participate in Camerata Singers, University Choir, Kantorei, and/ or University Chorale. Keyboard students may substitute accompanying for major ensemble participation for two semesters during their junior and/or senior years, with their major applied teacher's consent. Composition and music history students may, with their advisor's consent, substitute other ensembles.

Music therapy students who complete a senior research project rather than a senior recital are required to complete 6 s.h. of major ensemble participation.

Any student who wants to request adjustment of the major ensemble requirement must submit his or her request in writing to a review committee consisting of the ensemble director(s) involved, the studio instructor, and the associate director for undergraduate studies.

Major ensembles are as follows.

025:142 Camerata Singers 1 s.h.
025:181 University Choir 1 s.h.
025:185 Kantorei 1 s.h.
025:191 University Chorale (Women's Chorale) 1 s.h.
025:192 Orchestra 0-1 s.h.
025:194 Symphony Band/Concert Band/University Band 0-1 s.h.

ELECTIVES

Students may take advanced electives in performance (including chamber music and piano accompanying), theory, composition, cultural diversity, music education, music therapy, music history, music literature, conducting, and orchestration.

Performance Concentrations

A performance concentration is available in each of the orchestral areas—strings, brass, woodwinds, and percussion—and in voice and keyboard. Students must take at least an additional 17 s.h. beyond the School of Music general course requirements. This course work is chosen from a list of electives unique to each performance area. Course listings for each of the respective areas are available from the School of Music academic office.

Jazz Studies Emphasis

Students are admitted to this program only by audition, which occurs after they complete the freshman year. When admitted, they are assigned to the jazz studies adviser in addition to their regular faculty adviser.

Senior recital and recital attendance requirements are the same as those for the B.M. degree. Course requirements are the same as those for the B.M. degree plus an additional 18 s.h. of jazz courses. Students in the jazz studies emphasis program must attend a weekly jazz seminar.

Music Therapy

Admission to the program in music therapy is based on successful completion (grade of C+ or higher) of 025:114 Orientation to Music Therapy. In addition to the core courses in music therapy listed below, specific courses are required in biological sciences, psychology, and music.

A six-month internship in an approved off-campus clinical facility is required before completion of the degree. Following successful completion of the internship, students are eligible to sit for the board certification examination in music therapy.

Specific course requirements for music therapy are as follows.

All of these:
075:144 Psychology of Music 2 s.h.
075:149 Introduction to Music Research 2 s.h.
025:017 Secondary Performance—Voice (2 s.h. required) 1 s.h.
025:071 Group Instruction in Piano I 1 s.h.
025:072 Group Instruction in Piano II 1 s.h.
025:073 Group Instruction in Piano III 1 s.h.
025:074 Recital Attendance (four semesters required) 4 s.h.

025:091 Music Foundations in Therapy I 2 s.h.
025:092 Music Foundations in Therapy II 2 s.h.
025:094 Music Therapy Practicum (three semesters, for 1, 2, and 2 s.h. respectively) 5 s.h.
025:096 Music Techniques in Special Education and Recreation 3 s.h.
025:114 Orientation to Music Therapy 2 s.h.
025:138 Music Therapy Techniques: Atypical Children 3 s.h.
025:139 Music Therapy Techniques: Adult Clients 3 s.h.
025:140 Internship in Music Therapy 2 s.h.

One of these:
025:117 Arranging for Band 2 s.h.
025:148 Instrumentation 2 s.h.

One of these:
025:098 Senior Project in Music Therapy 3 s.h.
025:154 Senior Recital 1 s.h.

Composition Concentration

Applicants should submit a portfolio of creative work for evaluation by the composition faculty. Upon admission to the program, students are assigned a faculty adviser. Accomplished students may gain admission as entering first-year students; in such cases the approval of submitted work replaces a performance audition. If the composition faculty advises postponement of admission until further study has been undertaken, the entering first-year or transfer student must audition in a performance studio to be admitted to the School of Music.

Composition students fulfill the general requirements of the Bachelor of Music or the Bachelor of Arts degree as stated earlier in this section of the Catalog. The B.M. and B.A. programs in composition require additional course work in composition and music theory; see the composition degree requirements on the School of Music web site.

The Bachelor’s Thesis (025:099) replaces the recital required of applied music students. It consists of one or more compositions, approved by a committee of three faculty members and performed on regularly scheduled School of Music recitals.

Teacher Certification

(B.M. With Teacher Licensure)

Students seeking teacher certification must be admitted to the School of Music by auditioning for a performance studio. Teacher licensure in music education may be earned by completing the appropriate licensure program (e.g., band, choral, string) in addition to the School of Music requirements for a Bachelor of Music degree.
Before taking required professional education courses, undergraduate students must be admitted to the College of Education’s Teacher Education Program (TEP).

Students seeking a teaching certificate must complete all professional education requirements for teaching music in grades K-12. They must complete a music teaching major as defined by the School of Music, including a minimum of 82 s.h. in music course work in the teaching area.

Music TEP students must maintain a University of Iowa g.p.a. and a cumulative g.p.a. of at least 2.70 in all course work, and a cumulative g.p.a. of at least 3.00 in course work for the music major. They must have a cumulative g.p.a. of at least 2.70 at the time of recommendation for licensure.

The designated College of Education adviser must approve all transfer credit or substitution of courses for stated program requirements. At the time of application for a teaching license, a completed copy of the program guide, signed by the College of Education adviser, should be attached to the licensure application.

Music TEP students must complete at least 20 s.h. at The University of Iowa in order to be recommended for licensure.

In addition to the B.M. requirements in music, TEP students must take College of Liberal Arts and Sciences General Education courses that fulfill licensure requirements. They also must take music education methods and technique courses and professional education courses.

The following courses are required for all music TEP students. Courses 07S:096, 07E:102/07S:102, 07S:190, and 07S:195 are prerequisites for all other certification courses; students must take them during their first semester in the Teacher Education Program.

One college-level math course (excluding 22M:001, 22M:002, 22M:003)

07B:180 Human Relations for the Classroom Teacher 3 s.h.
07E:100/07S:100 Foundations of Education 3 s.h.
07E:102/07S:102 Technology in the Classroom 2 s.h.
07E:145 Methods and Materials: General Music 3 s.h.
07E:192 Special Area Student Teaching 6 s.h.
07P:075 Educational Psychology and Measurement 3 s.h.
07S:096 Introduction and Practicum: Music 2 s.h.
07S:187 Seminar: Curriculum and Student Teaching 1 s.h.
07S:190 Orientation to Secondary Education 1 s.h.
07S:191 Observation and Laboratory Practice in the Secondary School 6 s.h.
07S:195 Teaching Reading in Secondary Content Areas 1 s.h.
07U:100 Foundations of Special Education 3 s.h.
or
07U:130 Exceptional Persons 3 s.h.

BRASS, WOODWIND, AND PERCUSSION STUDENTS

Brass, woodwind, and percussion students in the TEP participate in 025:193 Marching Band for one semester. Exceptions must be approved by the head of the music education area.

The following courses are required.

07S:140 Band Methods and Materials 3 s.h.
07S:143/025:105 Instrumental Techniques 7 s.h.
07S:145/025:108 Instrumental Conducting 2 s.h.
025:100 Class Strings 1 s.h.
025:182 Marching Band Techniques 1 s.h.
025:193 Marching Band 1 s.h.
025:196 Jazz Band Techniques (with corequisite 025:197, section 3) 2 s.h.

STRING STUDENTS

String majors take two semesters of secondary performance on each of three string instruments other than their primary instrument (total of 6 s.h.). For example, violin majors take two semesters of each of these: 025:022 Secondary Performance—Viola, 025:023 Secondary Performance—Cello, and 025:024 Secondary Performance—String Bass.

The following courses are required.

07S:143/025:105 Instrumental Techniques (1 s.h. each of brass, woodwind, percussion) 3 s.h.
07S:145/025:108 Instrumental Conducting 2 s.h.
07S:150/025:112 String Methods and Materials 2 s.h.
Secondary performance (six semesters chosen from 025:021, 025:022, 025:023, or 025:024) 6 s.h.

VOCAL AND KEYBOARD STUDENTS


The following courses are required.

07S:143/025:105 Instrumental Techniques (1 s.h. each of brass, woodwind, percussion) 3 s.h.
07S:147/025:109 Choral Methods 3 s.h.
07S:148/025:110 Choral Conducting and Literature 3 s.h.
025:100 Class Strings 1 s.h.
Secondary performance (two semesters chosen from 025:017, 025:018) 2 s.h.

KEYBOARD STUDENTS (NONVOCAL)

Keyboard students who plan to teach in nonvocal areas complete the requirements in either the brass-woodwind percussion area or the string area, as stated above.

Admission to TEP

Application forms for admission to the teacher education program are available from the Office of Teacher Education and Student Services at the College of Education. Application deadline for the secondary Teacher Education Program is June 15; applications submitted by October 15 or March 15 by qualified applicants are approved if openings in classes become available. The Music Teacher Education Program accepts a limited number of applicants; meeting the minimum requirements (stated below) does not guarantee admission. Application also requires a proficiency exam and a personal statement.

Minimum requirements for admission to the music TEP are:

- A University of Iowa g.p.a. and a cumulative g.p.a. of at least 2.70 at the time of admission to the program;
- completion of at least 30 s.h. of college credit, a 10-hour volunteer practicum in a secondary school setting, and the PRAXIS I exam.

Bachelor of Arts

The Bachelor of Arts degree in music is a nonprofessional degree for students who have strong abilities and interest in music but are not planning on a career as a musician, or who want to combine a major in music with another major in a liberal arts and sciences discipline. Students must audition and be accepted into a performance area. They develop musicianship and performance skills and choose from a wide variety of music electives.

Students in many areas, from engineering and physics to history, art, and English, find that a B.A. in music is a good addition to their studies. Other students choose the B.A. in music to complement course work in business (especially the minor in business administration), foreign language and literature, or interdisciplinary fields like American studies and literature, science, and the arts. Some students combine a B.A. in music with undergraduate preparation to study law or medicine.

Students who seek the B.A. may choose an emphasis in performance, music history, composition, or jazz studies. The performance emphasis requires 37-42 s.h. in music course work and is offered in all performance areas listed under the B.M. degree. The music history and composition emphases require 50 s.h. in music course work. The jazz studies emphasis requires 40-50 s.h. of music course work. Music education and music therapy programs are offered only with the B.M. degree.

All B.A. students must complete the College of Liberal Arts and Sciences General Education Program and satisfy all other collegiate requirements. Specific requirements for each emphasis area are available from the School of Music and the Academic Advising Center.

Performance Emphasis

Students may enroll in lower-level applied instruction for a maximum of six semesters (not including summer). Those who wish to continue lessons for more than six semesters must be approved for upper-level applied instruction or must register under the nonmajor category (music majors may not count nonmajor instruction toward the elective requirement).

Several students participate in orchestra; wind and percussion students participate in bands; and voice students participate in choral organizations.

Any student who wants to request adjustment of the ensemble requirement must submit his or her
request in writing to a review committee consisting of the ensemble director(s) involved, the major teacher, and the associate director for undergraduate studies.

All music majors with scholarships must participate in a major ensemble and studio lessons each semester.

Major ensembles are listed under “Bachelor of Music,” “Ensemble Participation.”

Music History Emphasis

All applicants should submit examples of written work (term paper, senior thesis) for evaluation to the music history faculty. Upon acceptance to the music history program, students who already are enrolled as music majors are assigned a faculty adviser in music history. Incoming first-year students, in addition to being accepted by the major area, must pass a studio audition before they can be admitted to the School of Music. All students, in consultation with their adviser, design an appropriate plan of study, which includes assignment to an applied studio.

Bachelor’s Thesis (025:099) replaces the recital. It consists of a major research paper, approved by a committee of three faculty members.

All music majors with scholarships must participate in a major ensemble and studio lessons each semester.

Jazz Studies Emphasis

The B.A. in Music with a jazz studies emphasis is designed for students seeking a liberal arts structure for their undergraduate degree. It is not designed for those who intend to pursue graduate work in music or a professional credential program in music.

All music majors with scholarships must participate in a major ensemble and studio lessons each semester. Admission to the program is determined by audition with the director of jazz studies and a studio teacher. Guitar students must petition an ad hoc committee that includes the director of jazz studies, the undergraduate music adviser, and a studio professor for admission to the major.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s Four-Year Graduation Plan.

In addition to the requirements listed under the checkpoints, all students must complete 2 s.h. in applied music and 1 s.h. in a major ensemble each semester.

Four-year graduation plan agreements for music therapy and music education are not available.

Bachelor of Arts

The bachelor of arts degree with a performance concentration requires 39 s.h. earned in School of Music courses. The B.A. with a music history or composition emphasis requires 50 s.h. earned in School of Music courses.

Before the third semester begins: 15-18 s.h. of course work in the major, including 025:002, 025:003, 025:071, and 025:072; and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: at least 23-32 s.h. of course work in the major, including 025:004 and 025:005, and at least one-half of the semester hours required for graduation

Before the seventh semester begins: at least 33-41 s.h. of course work in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: at least 36-46 s.h. of course work in the major

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

Bachelor of Music

Students may apply more than 50 s.h. earned in School of Music courses toward the minimum 120 s.h. required for the B.M. degree.

Before the third semester begins: 18 s.h. of course work in the major, including 025:002, 025:003, 025:071, and 025:072; and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: at least 34 s.h. of course work in the major, including 025:004 and 025:005, and at least one-half of the semester hours required for graduation

Before the seventh semester begins: at least 50 s.h. of course work in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: at least 56 s.h. of course work in the major

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

Honors

Exceptional music majors who are members of the University Honors Program and maintain a music g.p.a. of at least 3.80 may enroll in the School of Music’s honors program. Membership in the University Honors Program requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information).

Throughout undergraduate residence, honors music students may enroll in honors sections of courses in the school and in the College of Liberal Arts and Sciences. They also may seek honors designation for any course, with the instructor’s consent. All honors course work must be approved by the School of Music honors adviser.

Honors students with junior or senior standing and a music g.p.a. of at least 3.80 may undertake work leading to the bachelor’s degree (B.M. or B.A.) with honors. Graduation with honors is awarded after completion of 6-8 s.h. of honors work; students must earn a minimum of 3 s.h. in 025:097 Honors in Music. Honors projects for which credit is given in 025:097 include honors performances (solo and/or ensemble); honors compositions (or transcriptions, orchestrations, arrangements); and honors essays, research papers, editions, or translations. A combination of at least two of these types of projects is required. None of the projects may duplicate projects assigned in other courses, nor may they be required for graduation (e.g., 025:154 Senior Recital).

Honors students in music are encouraged to take graduate-level courses. Advanced courses in music history, music theory, and languages are particularly recommended. An honors committee appointed by the adviser and the student’s faculty sponsor evaluates the student’s work.

Consult the music honors adviser for more information.

National Honor Society

The School of Music sponsors a chapter of Pi Kappa Lambda, the national music honor society. Students of exceptional ability are recommended for membership by faculty members. For more information, consult the School of Music honors adviser.

Minor

Students may earn a minor in music by completing 15 s.h. of course work in the School of Music, including 12 s.h. in advanced course work at The University of Iowa. Advanced courses include all courses numbered 025:100 and above, the core music major courses in the music theory sequence (025:002, 025:003, 025:004, and 025:005), and all lower-level applied instruction courses for majors.

Students must include one music theory course, one music history course; and 3 s.h. of performance courses (lower-level applied instruction for majors or ensembles). Auditions with the major instructor are required for the admission to the lower-level instruction courses; admission to the theory courses is through the theory placement exam or completion of 025:010 Fundamentals of Music. Students seeking a music minor must maintain a g.p.a. of at least 2.00. No course counted toward the minor may be taken pass/nonpass.

Financial Aid

A number of music activity scholarships are available to qualified undergraduate music majors. For information, write to the School of Music.

Graduate Programs

Students may work toward a Master of Arts, Master of Fine Arts, Doctor of Philosophy, or Doctor of Musical Arts. The school also offers a theory pedagogy minor and a certificate in sacred music.

Before applicants can be considered for admission to any of the graduate programs, they must
submit supporting materials in their indicated area of concentration. Information about specific admission to the Graduate College and curriculum requirements for each area in the School of Music is available from the school’s academic office.

**GENERAL REQUIREMENTS**

Before they register, entering graduate students must take two School of Music advisory examinations: one in music theory, and one in music history and literature (M.A. students in music therapy are not required to take the advisory examination in music theory or music history). These examinations are given at the beginning of the fall semester on the two days (except Sunday) immediately preceding the opening of classes, and at the beginning of the spring and summer sessions on the day (except Sunday) immediately preceding the opening of classes. A leaflet describing the general content of these tests is available from the School of Music academic office.

Detailed information about graduate study at Iowa (e.g., admission, degree, and examination requirements) is provided in the Manual of Rules and Regulations of the Graduate College; see the Graduate College section of the Catalog.

**ENSEMBLE PARTICIPATION**

Candidates for the Master of Arts and Master of Fine Arts (performance tracks) and Doctor of Musical Arts in performance and pedagogy are required to complete four semesters of major ensemble participation. Students normally enroll in major ensemble participation during consecutive semesters beginning early in their degree work, to ensure completion of the major ensemble requirements in a timely manner. Ensemble assignments are made at the discretion of the major teacher and ensemble director. For a list of major ensembles, see “Ensemble Participation” under “Bachelor of Music” in this section of the Catalog.

Keyboard majors may substitute accompanying for major ensemble participation, at the major applied teacher’s discretion. Jazz studies majors substitute 025:197 Jazz Band for major ensemble participation. Theory, composition, musicology, music education, and music therapy majors have no major ensemble requirement.

Any student who wants to request adjustment of this requirement must submit his or her request in writing to a review committee consisting of the major teacher(s) involved, the major teacher, and the School of Music associate director for graduate studies.

**Master of Arts**

The Master of Arts is offered in performance, conducting, jazz studies, composition, music theory, musicology, music therapy, music education, and opera theater direction. Performance majors present a public recital in lieu of a written thesis. Jazz studies majors present a public recital and a separate performance project. The Master of Arts without thesis is offered in performance, jazz studies, music education, and music therapy. Both thesis/recital and nonthesis degrees require a minimum of 30-33 s.h. of postbaccalaureate study. All M.A. programs—except music therapy—must include the following requirements. (Consult the music therapy program for information about requirements for the music therapy M.A.)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>025:321</td>
<td>Introduction to Graduate Study in Music</td>
<td>2 s.h.</td>
</tr>
</tbody>
</table>

**Music Therapy**

Students must earn 6 s.h.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>025:240</td>
<td>Analytical Techniques (unless exempt through advisory examination)</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Students exempted from 025:240 through the advisory examination in music therapy must substitute an additional theory elective from the following.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>025:145</td>
<td>Counterpoint before 1600</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:147</td>
<td>Counterpoint after 1600</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Doctoral Degrees**

All doctoral study in music includes the following.

Minimum course requirements listed under the M.A. degree

One or more additional music theory course(s) listed in the master’s degree requirements

One or more additional course(s) in music history, chosen from those listed in the master’s degree requirements

One of these:

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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Proficiency in one or more foreign languages is required in most areas.

**Doctor of Philosophy**

Areas of concentration for the Ph.D. include composition, musicology, music education, music theory, and music literature. The music literature program is designed for students who already have achieved a professional level of musical performance. These students are required to audition in their major performance area.

Information about specific admission and curricular requirements for each area is available from the School of Music academic office.

**Doctor of Musical Arts**

Requirements for the D.M.A. degree in performance and pedagogy are the same as the school’s general doctoral requirements, except that the D.M.A. requires three full-length recitals. At the performance area’s discretion, a concerto performance with orchestra or other appropriate ensemble from the School of Music may be substituted for one of the recitals. Singers may substitute one major opera role or one major solo contribution to an orchestra performance for one of their recitals. Conductors present two programs. See the associate director for graduate programs for specific area requirements.

D.M.A. candidates also must complete a scholarly investigation of limited scope in a written essay or thesis.

**Certificate in Sacred Music**

The certificate program is interdisciplinary. It requires course work in sacred music, choral conducting/literature, keyboard, voice, religion,
and art and art history. Acceptance to the Graduate College is required. Simultaneous work toward a graduate degree is an option but is not required.

Theory Pedagogy Minor
Any student admitted to a graduate degree program in the School of Music may take this minor by completing the following required courses.

One of these:
025:145 Counterpoint Before 1600 3 s.h.
025:147 Counterpoint After 1600 3 s.h.

Both of these:
025:236 Methods and Techniques of Teaching Basic Theory 3 s.h.
025:237 Music Theory Colloquium (concurrent with 025:236) 0-1 s.h.

One of these:
025:249 Analysis of Tonal Music 3 s.h.
025:312 Schenkerian Theory and Analysis 3 s.h.

Total of 6 s.h. from these:
025:241 History of Music Theory I 3 s.h.
025:242 History of Music Theory II 3 s.h.
025:247 Analysis of Music Literature 1890-Present 3 s.h.
025:256 Analysis of Music Literature: Special Topics 3 s.h.
025:311 Theory and Analysis of Atonal Music 3 s.h.

Graduate Awards
Qualified graduate students are invited to apply for teaching and research assistantships. Inquiries should be directed to the academic office of the School of Music.

Music for Nonmajors
Courses recommended for nonmajors who are interested in music include the following.

025:010 Fundamentals of Music 3 s.h.
025:013 Concepts and Contexts of Western Music 3 s.h.
025:014 Great Musicians 3 s.h.
025:059 Performance Instruction for Non-Majors 1 s.h.
025:063 Survey of World Percussion 1 s.h.
025:064 Recital Attendance for Non-Majors 1 s.h.
025:067 Group Piano I: Non-Music Majors 1 s.h.
025:068 Group Piano II: Non-Music Majors 1 s.h.
025:103 World Music 3 s.h.
025:104 Fundamentals of Music 3 s.h.
025:107 Nonprofit Organizational Effectiveness 3 s.h.
025:108 Group Piano I: Non-Music Majors 1 s.h.
025:128 Intermediate Theory 1 s.h.
025:145 Counterpoint Before 1600 3 s.h.
025:147 Counterpoint After 1600 3 s.h.
025:147 History of Music I 3 s.h.
025:148 History of Music II 3 s.h.
025:178 Music, Culture, and Identity 3 s.h.
025:197 Composition 3 s.h.

Group Piano I: Non-Music Majors (025:068) is available for nonmajors who wish to develop elementary performance skills for personal musical growth and enjoyment.

Participation in School of Music ensembles is open to all University students with the ensemble director’s approval (for a list of major ensembles, see “Ensemble Participation” under “Bachelor of Music”).

Applied music instruction is offered to nonmajors as instructors are available. Nonmajors interested in registering for 025:059 Performance Instruction for Non-Majors should consult music advisers.

Center for New Music
The Center for New Music is a vital component of the School of Music’s composition program. Since its founding in 1966, the center has been both laboratory and showcase for late-20th-century music. It presents several concerts of contemporary works each academic season. It also provides a forum for visiting composers and other creative artists, bringing new music to a variety of outreach venues. Audition, rehearsal, and programming information is available on request.

Facilities
The Iowa Center for the Arts has one of the nation’s finest facilities for teaching and performance in music. In addition to classrooms, the Voxman Music Building includes 55 teaching studios, 73 practice rooms, a library, three electronic music laboratories, ear training and listening facilities with 50 listening posts, four large rehearsal halls, ensemble rooms, professional recording facilities, an Instructional Technology Center with 30 microcomputers with MIDI equipment and music-related software, eight practice and recital organs, the 80-seat Krapf Organ Studio, and the 700-seat Clapp Recital Hall. Hancher Auditorium seats 2,680 people for concerts and 2,400 for opera and other stage productions.

The Rita Benton Music Library holds more than 65,000 music scores, including chamber music sets; 48,000 books, including bound journals; 3,200 microforms, chiefly manuscripts and early printed books; and 34,000 media items in all formats. It receives about 300 journals. Its Rare Book Room has particular strengths in 18th- and 19th-century music theory treatises and instrumental methods, and an outstanding collection of keyboard and chamber music by Ignaz Pleyel. Music manuscripts of the composer Phillip Greville Clapp, a former director of the school, are housed in Special Collections at the University’s Main Library. The Goldman Band Collection also is kept in the Main Library.

The Music Library accommodates 100 patrons at carrels and tables, with additional space at 24 listening room stations outfitted with turntables, CD decks, or cassette decks. Separate small rooms house microformat readers and video equipment. The photocopier accommodates ledger-size sheets, enlargement, and reduction. All print material are on open shelves; patrons must request audio records, videos, and microformats. The large reference collection is supplemented by standard electronic versions of music references and InfoHawk, the University’s library catalog online.

Courses
General
Other courses appropriate for nonmajors are 025:144 and 025:146, described under the heading “Music History”; 025:141 under the heading “Jazz Studies”; and most ensembles under the heading “Ensembles.”

*Instruction in 025:059 Performance Instruction for Non-Majors consists of a half-hour lesson per week. The course is offered on a fee-per-course basis, in addition to tuition. Students register under separate section numbers for different instruments.

025:010 Fundamentals of Music 3 s.h.
025:013 Concepts and Contexts of Western Music 3 s.h.
025:014 Great Musicians 3 s.h.
025:059 Performance Instruction for Non-Majors 1 s.h.
025:063 Survey of World Percussion 1 s.h.
025:064 Recital Attendance for Non-Majors 1 s.h.
025:067 Group Piano I: Non-Music Majors 1 s.h.
025:103 World Music 3 s.h.
025:104 Fundamentals of Music 3 s.h.
025:107 Nonprofit Organizational Effectiveness 3 s.h.
025:164 Social History of the Violin 1-3 s.h.
025:167 Movement for Performers 2-3 s.h.
025:170 Nonprofit Organizational Effectiveness I 3 s.h.
025:177 Nonprofit Organizational Effectiveness II 3 s.h.
025:178 Music, Culture and Identity 3 s.h.
Use of music as marker of social identity, focus on popular music in the United States and interplay among Latino, African and European-American musical cultures; listening skills.

Applied Music

Instruction consists of individual and/or class lessons, at the instructor's option, for a minimum of one hour per week (students register for 2 s.h.), or one half-hour per week (students register for 1 s.h.). Majors are required to attend weekly performance and pedagogy seminars in applied music. Offered on a fee-per-course basis, in addition to tuition. Repeatable.

LOWER-LEVEL UNDERGRADUATE MAJORS
025:040 Lower Level Voice
025:041 Lower Level Piano
025:042 Lower Level Organ
025:043 Lower Level Guitar
Prerequisite: admission to B.A. jazz studies emphasis.
025:044 Lower Level Violin
025:045 Lower Level Viola
025:046 Lower Level Cello
025:047 Lower Level String Bass
025:048 Lower Level Flute
025:049 Lower Level Oboe
025:050 Lower Level Clarinet
025:051 Lower Level Bassoon
025:052 Lower Level Saxophone
025:053 Lower Level Horn
025:054 Lower Level Trumpet
025:055 Lower Level Euphonium
025:056 Lower Level Trombone
025:057 Lower Level Tuba
025:058 Lower Level Percussion

UPPER-LEVEL UNDERGRADUATE MAJORS
025:119 Upper Level Voice
025:120 Upper Level Piano
025:121 Upper Level Organ
025:122 Upper Level Violin
025:123 Upper Level Viola
025:124 Upper Level Cello
025:125 Upper Level String Bass
025:126 Upper Level Flute
025:127 Upper Level Oboe
025:128 Upper Level Clarinet
025:129 Upper Level Bassoon
025:130 Upper Level Saxophone
025:131 Upper Level Horn
025:132 Upper Level Trumpet
025:133 Upper Level Euphonium
025:134 Upper Level Trombone
025:135 Upper Level Tuba
025:136 Upper Level Percussion

GRADUATE MAJORS
025:263 Major Voice

025:264 Major Piano
025:266 Major Organ
025:267 Major Violin
025:268 Major Viola
025:269 Major Cello
025:270 Major String Bass
025:271 Major Flute
025:272 Major Oboe
025:273 Major Clarinet
025:274 Major Bassoon
025:275 Major Saxophone
025:276 Major Horn
025:277 Major Trumpet
025:278 Major Euphonium
025:279 Major Trombone
025:280 Major Tuba
025:281 Major Percussion

SECONDARY PERFORMANCE INSTRUCTION FOR MAJORS

Instruction consists of one half-hour lesson per week. Offered on a fee-per-course basis, in addition to tuition.

025:017 Secondary Performance—Voice 1 s.h.
025:018 Secondary Performance—Piano 1 s.h.
025:019 Secondary Performance—Organ 1 s.h.
025:021 Secondary Performance—Violin 1 s.h.
025:022 Secondary Performance—Viola 1 s.h.
025:023 Secondary Performance—Cello 1 s.h.
025:024 Secondary Performance—String Bass 1 s.h.
025:025 Secondary Performance—Flute 1 s.h.
025:026 Secondary Performance—Oboe 1 s.h.
025:027 Secondary Performance—Clarinet 1 s.h.
025:028 Secondary Performance—Bassoon 1 s.h.
025:029 Secondary Performance—Saxophone 1 s.h.
025:030 Secondary Performance—Horn 1 s.h.
025:031 Secondary Performance—Trumpet 1 s.h.
025:032 Secondary Performance—Euphonium 1 s.h.
025:033 Secondary Performance—Trombone 1 s.h.
025:034 Secondary Performance—Tuba 1 s.h.
025:035 Secondary Performance—Percussion 1 s.h.

Choral Literature

025:341 Seminar: Choral Literature and Analysis I 1-3 s.h.
025:342 Seminar: Choral Literature and Analysis II 1-3 s.h.
025:343 Seminar: Choral Literature and Analysis III 1-3 s.h.
025:344 Seminar: Choral Literature and Analysis IV 1-3 s.h.

Composition

025:148 Instrumentation 2 s.h.
Basic techniques of writing for orchestral instruments; ranges, transpositions, sound production, notating scores and parts. Prerequisite: 025:005.
025:155 Composition 2 s.h.
Prerequisite: 025:005 or consent of instructor.
025:156 Composition Seminar 0-1 s.h.
Corequisite: 025:223.
025:157 Orchestration 2 s.h.
Instrumental capabilities and combinations in solo, chamber, and large ensemble literature; application in composition. Prerequisite: 025:148 or consent of instructor.
025:179 Composition arr.
Individual lessons with a composition faculty member. Prerequisite: 025:155 or equivalent.
025:223 Advanced Composition arr.
Repeatable. Prerequisite: consent of instructor.
025:250 Composition: Electronic Media I 3 s.h.
Composition using analog, digital technology. Offered fall semesters. Repeatable. Prerequisite: consent of instructor.
025:251 Composition: Electronic Media II 3 s.h.
Advanced experimental composition in association with analog, digital technologies. Offered spring semesters. Repeatable. Prerequisite: consent of instructor.

Conducting

See also 025:108, 025:109, and 025:110, under the heading "Music Education."

025:107 Techniques of Conducting 2 s.h.
Basic elements, score analysis.
025:158 Advanced Conducting 2 s.h.
Prerequisite: graduate standing.
025:201 Advanced Choral Conducting I 1-3 s.h.
025:204 Advanced Choral Conducting II 1-3 s.h.
025:205 Advanced Choral Conducting III 1-3 s.h.
025:206 Advanced Choral Conducting IV 1-3 s.h.
025:225 Score Reading 1 s.h.
025:291 Orchestral Literature arr.

Ensembles

Courses may be repeated; consent of instructor required.

025:095 Old Gold Singers 0-2 s.h.
025:142 Camera Singers 1 s.h.
025:162 All-University String Orchestra 1 s.h.
Rehearsal, rehearsal pacing, and performance expectation geared to general students. Open to all UI students with no audition.
025:163 Steel Band 1 s.h.
Musical and cultural introduction to steel band music of Trinidad and other Caribbean musical styles, including calypso, soca, ska, and reggae. Prerequisite: consent of instructor.
025:173 Afro-Cuban Drum and Dance Ensemble 1 s.h.
Drumming, dance, and songs from folkloric musical traditions of Cuba. Prerequisite: audition. Same as 137:174.
025:180 Large Pep Band 1 s.h.
Performing ensemble for men's basketball games during spring semester. Prerequisite: membership in marching band (025:193) and audition.
025:181 University Choir 1 s.h.
025:183 Chamber Orchestra 0-1 s.h.
025:184 Collegium Musicum 1 s.h.
Ensemble dedicated to performance of medieval, renaissance, and baroque music.
Prerequisite: teacher education student in music.

025:109 Choral Methods
Effective choral music programs for all ages. Same as 075:147.

025:110 Choral Conducting and Literature
Prerequisite: 025:109. Same as 075:148.

025:112 String Methods and Materials
Same as 075:156.

025:117 Arranging for Band
Scoring and arranging techniques for concert, marching bands. Offered spring semesters.

025:182 Marching Band Techniques
Administration, charting. Offered fall semesters.

025:220 Music Education Workshop
For in-service music teachers; topics vary. Same as 075:241.

Music History
Note: Courses 025:302 and 025:309, 025:313 and 025:314, 025:323 and 025:324, and 025:331 deal with periods and special topics in music history. They are offered about every two years. All of them have as prerequisites 025:301 and 025:302, or the equivalents, or consent of instructor.

This listing includes several courses appropriate for nonmajors. Other music history courses appropriate for nonmajors are listed under the heading “General.”

025:137 Literature, Music, and Aesthetics
Interdisciplinary connections between literature and music with attention to specific cultural, ideological contexts. Same as 033:145.

025:144 History of Music I
GE: fine arts or historical perspectives. Prerequisites: 025:003 and 025:004, or equivalents for majors; consent of instructor for nonmajors.

025:146 History of Music II
GE: fine arts or historical perspectives. Prerequisites: 025:003 and 025:004, or equivalents for majors; consent of instructor for nonmajors.

025:238 MusicoLOGY Colloquium
Repeatable.

025:301 Advanced History and Literature of Music I
History and style of Medieval, Renaissance, and Baroque music (750-1750). Offered fall semesters.

025:302 Advanced History and Literature of Music II
History and style of Classical, 19th-, 20th-, and 21st-century music (1750-present). Offered spring semesters.

025:356 Seventeenth-Century Music
Prerequisite: 025:302 or consent of instructor.

025:360 Eighteenth-Century Music
Prerequisite: 025:302 or consent of instructor.

025:370 Nineteenth-Century Music
Prerequisite: 025:302 or consent of instructor.

025:380 Music 1900-1945
Repeatable. Prerequisite: 025:302 or consent of instructor.

025:455 String Bass Techniques
Prerequisite: 025:302 or consent of instructor.

025:460 Jazz Arranging
Prerequisite: 025:302 or consent of instructor.

025:501 Principles of Music Education I
Prerequisite: 025:302 or consent of instructor.

025:502 Principles of Music Education II
Prerequisite: 025:302 or consent of instructor.

025:503 History of Music Education
Prerequisite: 025:302 or consent of instructor.

025:504 Music Theory for Educators
Prerequisite: 025:302 or consent of instructor.

025:505 Research in Music Education
Prerequisite: 025:302 or consent of instructor.

025:509 General Music Education
Prerequisite: 025:302 or consent of instructor.

025:510 Advanced Topics in Music Education
Prerequisite: 025:302 or consent of instructor.

025:511 Music in Society
Prerequisite: 025:302 or consent of instructor.

025:512 Theoretical and Practical Applications of Music Education
Prerequisite: 025:302 or consent of instructor.

025:513 Advanced Topics in Music Education
Prerequisite: 025:302 or consent of instructor.

025:520 Advanced Topics in Music Education
Prerequisite: 025:302 or consent of instructor.

025:521 History of Music Education
Prerequisite: 025:302 or consent of instructor.

Music and Technology
See also 025:250 and 025:251 Composition: Electronic Media I-II listed under “Composition.”

025:213 Fundamentals of Piano Technology
Offered spring semesters.

025:214 Recording Techniques
Audio fundamentals, including sound generation, acoustical environments, forms of sound energy, basic audio systems; use of microphones (primarily stereo techniques), mixers, recorders, related equipment; introduction to Pro Tools digital recording, editing, and mixing on Macintosh; production of high-quality audio compact discs. Offered fall semesters. Prerequisite: consent of instructor.

025:218 Art and Technology I
Offered fall semesters. Prerequisite: consent of instructor.

025:219 Art and Technology II
Offered spring semesters. Prerequisites: 025:218 and consent of instructor.

025:230 Seminar in Audio Recording
Functionality of Pro Tools digital audio recording, editing, mixing, and mastering on Macintosh; basic digital theory; configuration of Macintosh G4 computer with Pro Tools hardware and software, music editing projects and production of multitrack recordings. Offered spring semesters. Prerequisites: 025:214 and consent of instructor.

Music Therapy
025:091 Music Foundations in Therapy I
Skill development on social instruments such as guitar, autoharp, piano; song-leading skills and repertoire development for use in clinical music therapy sessions. Prerequisites: music therapy major, 025:114, and consent of instructor.

025:092 Music Foundations in Therapy II
Advanced skill development on guitar for use in clinical music therapy sessions; movement, percussion techniques, and related skills used in therapeutic settings. Prerequisites: music therapy major, 025:091, and consent of instructor.
025:094 Music Therapy Practicum 1-2 s.h.
Supervised training with adult clients and children in variety of health care settings. Prerequisites: music therapy major, 025:114, and consent of instructor.

025:096 Music Techniques in Special Education and Recreation 2-3 s.h.
Music methods and materials appropriate for students with disabilities in special educational settings; overview of individualized educational planning for students with disabilities. Prerequisite: music therapy major or consent of instructor.

025:098 Senior Project in Music Therapy 1 s.h.
Prerequisite: consent of instructor.

025:114 Orientation to Music Therapy 2 s.h.
Theory, practice, typical clients and places of employment in music therapy.

025:138 Music Therapy Techniques: Atrial Children 3 s.h.
Techniques, procedures for use in clinical, educational settings. Prerequisite: music therapy major, 025:114, and consent of instructor.

025:139 Music Therapy Techniques: Adult Clients 3 s.h.
Techniques, procedures for work with adult clients with disabilities. Prerequisites: music therapy major, 025:114, and consent of instructor.

025:140 Internship in Music Therapy 2 s.h.
Clinical training under direction of board certified music therapist. Prerequisites: core music therapy requirements and consent of instructor.

025:221 Special Studies in Music Therapy Seminar. Repeatable. Prerequisite: music therapy major and consent of instructor.

025:233 Piano Pedagogy II 2 s.h.
Historical survey of piano technique theories; central nervous system and piano playing, problems of playing, teaching, application of learning theories to piano teaching, development of piano performance; college level group piano instruction, including techniques, materials, and supervised teaching experience. Offered fall semesters.

025:286 College Teaching and Clinic Supervision in Music Theory 3 s.h.
Prerequisites: college teaching, curriculum development, clinical supervision in music therapy. Prerequisite: consent of instructor.

Organ and Sacred Music

025:180 Organ Literature Survey 2 s.h.
Fifteenth century to present. Prerequisite: advanced undergraduate or graduate level performance of organ literature.

025:198 Organ Pedagogy 1-2 s.h.
History, theory, practice from Renaissance to present; methods, repertoire appropriate for various levels.

025:226 History of Organ Building and Design 2-3 s.h.
Development of organ design from Middle Ages to present; basic concepts of construction, maintenance. Repeatable.

025:227 Liturgics 1-2 s.h.
History of liturgy and survey of liturgical music from Judaism to present.

025:228 Service Playing and Improvisation 1-2 s.h.
Hymn playing, accompanying, basic improvisation techniques. Repeatable. Prerequisite: organ major or consent of instructor.

025:229 Organ Literature Special Topics 2 s.h.
Specialized study in selected areas of organ literature. Repeatable.

025:252 Hymnology 1-2 s.h.
Survey of historic hymnody; ancient odes, Latin hymns, Reformation hymns and psalms; current developments in hymnody and hymnals, may be special topic study. Repeatable.

025:284 Studies in Church Music Seminar. Repeatable. Prerequisite: consent of instructor.

025:296 Piano Literature I 2 s.h.
Baroque era to Mozart or Chopin through 1900. Repeatable.

025:297 Piano Literature II 2 s.h.
Beethoven through Schumann or 20th century. Repeatable.

025:361 Special Studies Piano Literature 3 s.h.
Individual research in special aspects of piano literature; primarily for D.M.A. students. Repeatable.

025:362 Special Studies in Piano Accompaniment and Chamber Music Advanced collaborative arts practicum. Prerequisite: 025:186 or consent of instructor.

Recital and Thesis

025:097 Honors in Music 1-4 s.h.
Prerequisite: honors standing.

025:099 Bachelor’s Thesis 1 s.h.
Prerequisite: consent of instructor.

025:154 Senior Recital 1 s.h.

025:390 M.A. Performance Project 1 s.h.

025:400 M.A. Thesis 1 s.h.

025:401 M.F.A. Thesis 1 s.h.

025:402 M.A. Recital 1 s.h.

025:500 Ph.D. Thesis 1 s.h.

025:501 Composition Ph.D. Thesis 1 s.h.

025:502 D.M.A. Essay 1 s.h.

025:503 D.M.A. Recital 1 s.h.

Theory

025:001 Fundamentals of Music for Majors 3 s.h.
Music fundamentals through writing, hearing, performance; notation of pitch and rhythm; intervals, scales, triadic harmony; elements of tonality, key signatures, major and minor modes; sight-reading, dictation. Offered fall semesters. Corequisite: 025:071 or successful completion of piano proficiency examination.

025:002 Music Therapy and Theory I 4 s.h.
Principles of harmony and music therapy, theoretical concepts, notation. Offered fall semesters. Prerequisite: 025:001 or equivalent or successful completion of music fundamentals exam. Corequisite: 025:071 or successful completion of piano proficiency examination.

025:003 Music Therapy and Theory II 4 s.h.
Continuation of 025:002. Offered spring semesters. Corequisite: 025:072 or successful completion of piano proficiency examination.

025:004 Music Therapy and Theory III 4 s.h.
Continuation of 025:002 and 025:003; focus on common-practice repertory. Offered fall semesters.

025:005 Music Therapy and Theory IV 4 s.h.
Continuation of 025:002, 025:003, and 025:004; focus on 20th-century repertory. Offered spring semesters.

025:145 Counterpoint before 1600 3 s.h.
Two- and three-part counterpoint; Renaissance polyphony. Prerequisite: 025:003 for undergraduates, 025:240 for graduate students.

025:147 Counterpoint after 1600 3 s.h.
Two- and three-part writing in the style of J.S. Bach, fugue. Prerequisite: 025:005 for undergraduates, 025:240 for graduate students.

025:153 Keyboard Harmony 1-2 s.h.
Melody harmonization and figured bass realization at the keyboard. Keyboard proficiency required. Prerequisite: 025:005 for undergraduates, 025:240 for graduate students.

025:230 Methods and Techniques of Teaching Basic Theory 3 s.h.

025:237 Music Theory Colloquium 1 s.h.
Repeatable.

025:240 Analytical Techniques 3 s.h.
Theory, strategies of analysis applied to classic/romantic and post-tonal music.

025:241 History of Music Theory I 3 s.h.
Prerequisite: 025:240.

Ochestrall and Band Instruments

See also 025:12, under the heading “Music Education.”

Percussion literature, styles, notation, performance techniques, composition, survey. Prerequisite: consent of instructor.

025:168 Audition Repertoire 1 s.h.
Practition on passage frequently requested at professional auditions; mock auditions scheduled once a year. Prerequisite: consent of studio instructor.

025:209 Advanced Woodwind Pedagogy and Literature I 2 s.h.
Methods, materials, and teaching techniques for preschool students, precollege students, and adult learners. Prerequisite: keyboard major or consent of instructor.

025:210 Advanced Woodwind Pedagogy and Literature II 3 s.h.
Methods, materials, and teaching techniques for preschool students, precollege students, and adult learners. Prerequisite: keyboard major or consent of instructor.

025:233 Advanced Brass Pedagogy and Literature I 1 s.h.
Skills for the music therapy profession; singing, sight-reading, harmonization, transcription, reading from a fake book, improvisation. Prerequisite: music major.

025:234 Advanced Brass Pedagogy and Literature II 2 s.h.
Advanced Brass Ensemble Literature 2 s.h.
Brass chamber music literature, including mixed and like-instrument ensembles.
025:242 History of Music Theory II 3 s.h.
Prerequisite: 025:240 and 025:241.
025:247 Analysis of Music Literature 1890-Present 3 s.h.
Repeatable. Prerequisite: consent of instructor for undergraduates; 025:240 for graduate students.
025:249 Analysis of Tonal Music 3 s.h.
Analysis of tonal repertories from the 17th through 20th centuries. Repeatable. Prerequisite: consent of instructor for undergraduates; 025:240 for graduate students.
025:256 Analysis of Music Literature: Special Topics 3 s.h.
Repeatable. Prerequisite: consent of instructor for undergraduates; 025:240 for graduate students.
025:311 Theory and Analysis of Atonal Music 3 s.h.
Reading, application of current analytical approaches (e.g., Lewin, Morris, Mead, Cohm). Prerequisite: 025:247 or consent of instructor.
025:312 Schenkerian Theory and Analysis 3 s.h.
Application of Heinrich Schenker's theories to music 1700-1800. Prerequisite: 025:249 or consent of instructor.
025:380 Readings in Music Theory arr.

Voice and Opera

025:115 Diction for Singers I 2 s.h.
Ecclesiastical Latin, Spanish, Italian; basics of international phonetic alphabet and correct pronunciation for singing; no previous background required.
025:116 Diction for Singers II 2 s.h.
German pronunciation for singing. Prerequisite: 025:115.
025:159 Diction for Singers III 2 s.h.
French pronunciation for singing; no previous background required. Prerequisites: 025:115 and 025:116.
025:160 History of Art Song 2 s.h.
Historical survey of development of major Western art song styles. Offered fall semesters of even years.
025:165 Opera Workshop 2 s.h.
Opera assembling techniques, including acting, aria interpretation, scene work. Prerequisite: vocal major or audition.
025:169 Singing for Actors 2 s.h.
Fundamentals of singing technique; development of audition repertoire. Prerequisite: consent of instructor. Recommended: concurrent registration in 025:059. Same as 049:106.
025:175 Acting for Singers 2 s.h.
Fundamentals of acting technique, with attention to demands on performers in opera and musical theater. Prerequisite: consent of instructor. Same as 049:102.
025:201 Principles of Voice Production 3 s.h.
Physical, physiological, and psychological principles in professional, nonprofessional, and impaired voice production; anatomy, voice classification, control of loudness, pitch, register, quality, efficient, inefficient use of voice; emphasis on text, vocal problems, synthesis. Offered fall semesters. Same as 003:231.
025:202 Methods of Teaching Voice 1-2 s.h.
Attitude, musicianship, foreign language aptitude, physical and emotional characteristics; mental imagery used to modify respiratory, phonic, articulatory behavior; vocal hygiene; performance anxiety; student-teacher relationships; administration in vocal schools; professional organization. Offered spring semesters. Same as 003:202.
025:216 Voice for Performers 2 s.h.
Comparison of kinesthetic techniques for singing and acting voice; relaxation, posture, breathing, tone quality, diction, interpretation. Prerequisite: enrollment in Summer Vocation Institute, Denver, Colorado. Same as 003:204. 049:201.
025:235 Topics in Vocal Performance 2 s.h.
Selected areas of vocal performance. Repeatable.
025:245 Opera Production 2-4 s.h.
Presentation and rehearsals leading up to performance of full production; may include one act opera, chamber opera, musical theater production, or full-length opera. Repeatable. Prerequisite: audition. Corequisites: 025:348.
025:246 Opera Theater: Chorus 1 s.h.
Prerequisite: audition.
025:248 Opera Theater: Directing Seminar 2 s.h.
Arr. Exploration of directed techniques unique to directing opera. Prerequisite: consent of instructor.
025:339 Survey of Operatic Literature 3 s.h.
Important operatic scores examined from standpoint of performers, directors; production problems. Repeatable.
025:348 Vocal/Operatic Coaching 1 s.h.
025:351 Survey of Song Literature I 3 s.h.
German language lieder from 18th century to present; French mélodie from Meyerbeer to to present. Offered fall semesters of odd years.
025:352 Survey of Song Literature II 3 s.h.
British, American, Italian, Spanish, Latin American, Scandinavian, and Russian art song from 18th century to present. Offered fall semesters of even years.
025:356 Voice Habilitation 2-3 s.h.
Same as 003:213.
025:357 Instrumentation for Voice Analysis 2 s.h.
Same as 003:221.

THEATRE ARTS

Chair: Alan MacVey
Professors: Eric Forsythe, Alan MacVey
Professors emeriti: Cosimo A. Catalano, David Schaal, David Thayer
Associate professors: Loyce Arthur, Art Borreca, John Cameron, Merrel Darle Ciubb, Tisch Jones, Kim Marra (Theatre Arts/American Studies), Bryan Winn
Assistant professor: William Moser
Lecturers: James Albert, Merete Fechlin, Alex (Theatre Arts/Literature, Science, and the Arts), James P. Birde, Ralph Hall, Judy Leigh-Johnson, Carol MacVey
Undergraduate degree: B.A. in Theatre Arts
Undergraduate nondegree program: minor in Theatre Arts
Graduate degree: M.F.A. in Theatre Arts
Web site: http://www.uiowa.edu/~theatre

Undergraduate Program

The undergraduate major in theatre arts is based on the belief that the best way to develop future artists is to expose them to rigorous professional practice within the framework of a liberal arts and sciences education. Iowa theatre arts students take workshop courses in acting, directing, design, technical theatre, stage management, and playwriting and complement them with classes in dramatic literature, history, and criticism. Students also are actively encouraged to explore a range of courses throughout the University. Two dozen productions each year provide additional opportunities to learn the theatre craft and to develop a personal artistic vision.

The Department of Theatre Arts also participates in offering the major in performing arts entrepreneurship, offered through the Division of Performing Arts in cooperation with the John Pappajohn Entrepreneurial Center of the Tippie College of Business. For more information, see the Performing Arts Entrepreneurship section of the Catalog.

The department also is interested in educating students who plan to enter other fields in which understanding of the arts and experience with theatre skills are useful. See “Opportunities for Nonmajors” in this section of the Catalog.

Bachelor of Arts

The following courses compose the basic experience for all undergraduate theatre arts majors. Registration in some courses required for the major requires special permission. Contact the Department of Theatre Arts for more information.

MINIMUM REQUIREMENTS

Students must maintain a g.p.a. of at least 2.00 for all courses taken in the major. The following course work is required (total of 32 s.h.).
Many of these courses have prerequisites, which students must complete before they register in these courses.

049:025 Acting I 3 s.h.
049:044 Theatre Crafts 3 s.h.
049:060 Playscript Analysis 3 s.h.
*049:112 History of Theatre and Drama I 4 s.h.
*049:113 History of Theatre and Drama II 4 s.h.
Design elective (049:043, students with instructor’s consent may substitute 049:133 or 049:146) 3 s.h.
*Students who complete 049:002 or 049:003 before declaring a major in theatre arts must consult the undergraduate director before registering in 049:112 or 049:113.
Total of 3 s.h. from these production courses (all are repeatable):
049:045 Production: Run Crew 1-2 s.h.
049:046 Production: Crew Chief 2 s.h.
049:047 Production: Construction 1-2 s.h.
One of these:
049:125 Voice for the Actor 3 s.h.
049:127 Theatre Movement 3 s.h.
049:132 Stage Management 3 s.h.
049:133 Theatre Design I 3 s.h.
049:134 Scene Design I 3 s.h.
049:135 Costume Design I 3 s.h.
049:136 Lighting Design I 3 s.h.
049:140 Sound Design for the Theatre 3 s.h.
049:147 Technical Production I 3 s.h.
One of these:
A directing course (049:130 alone, or 049:104 and an independent study course) 3 s.h.
049:172 Senior Seminar 3 s.h.
049:194 Dramaturgy 3 s.h.
An upper-level playwriting course (049:063 or above) 3 s.h.
Students should complete 049:060 Playscript Analysis as soon as possible; it is prerequisite to several 100-level courses. Courses 049:025, 049:043, 049:060, and 049:112 or 049:113 normally are completed within the first three semesters of study in the major. Theatre Crafts (049:044) is prerequisite to all production courses; 049:045 Production: Run Crew is prerequisite to 049:046 Production: Crew Chief and 049:047 Production: Construction.

ELECTIVES

The College of Liberal Arts and Sciences maximum hours rule permits students earning a B.A. or B.S. to apply no more than 50 s.h. from
one department to the minimum 120 s.h. required for graduation, whether or not the course work is accepted toward major requirements. Students who earn more than 50 s.h. from one department may use the additional semester hours to satisfy major requirements (if the department accepts them), and the grades they earn become part of their grade-point average. But they cannot apply the additional semester hours to the minimum 120 s.h. required for graduation.

Majors may count up to 18 s.h. earned in theatre arts elective courses (prefix 049) toward the degree. Majors are encouraged to choose electives in the arts, humanities, and social sciences.

**AUDITIONS**

All productions are open to anyone who wishes to audition. Each play is cast on the basis of who is best suited to the available roles.

Theatre arts majors are encouraged to audition in general auditions at the beginning of the fall semester. They normally present a three-minute audition consisting of two contrasting pieces. From this audition, call-back lists are posted for major productions offered during the first semester. Additional general auditions normally are scheduled in early November and in February.

Materials and information about the general auditions are available from the theatre arts office in August. Notices of auditions for all subsequent productions are posted on the department’s call board.

**Transfer Students**

Students who transfer to The University of Iowa from other accredited two- or four-year institutions must demonstrate that they have successfully completed course work equivalent to the basic requirements of the theatre arts department and the University before they may undertake advanced-level electives. Consult with the director of undergraduate studies for further information.

**Four-Year Graduation Plan**

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s Four-Year Graduation Plan.

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

Before the fifth semester begins: Three courses in the major (chosen from 049:025, 049:043, 049:060, 049:112, and 049:113) and at least one-half of the semester hours required for graduation

Before the seventh semester begins: Three more courses in the major, two semesters of production credit, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: Two more courses in the major and another semester of production credit

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

**Honors**

Students who wish to pursue honors studies in the Department of Theatre Arts must be members of the University Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information). Senior theatre arts majors who are members of the University Honors Program, have earned a 3.33 g.p.a. in the major, and have approval from the theatre arts faculty may undertake an honors project. Projects may be analytical or creative, or an appropriate combination of the two. Projects ordinarily require an oral presentation or performance for designated faculty members as well as a research and writing component, which is due upon the project’s completion.

Students who wish to complete an honors project meet with the departmental honors adviser, who helps them find an appropriate adviser, prepares and gains acceptance for a written proposal, present the work, and evaluate the outcome. Theatre arts majors who are members of the University Honors Program may take honors courses in theatre arts. Courses in the major can be designated as honors courses with permission of the faculty member who teaches the course, the department, and the University Honors Program.

**Minor**

A minor in theatre arts requires 15 s.h. of course work in theatre arts, excluding 049:001, 049:002, and 049:003, with a g.p.a. of at least 2.00. At least 12 of the 15 s.h. must be taken at The University of Iowa in advanced courses. Advanced courses accepted by the department include 049:021, 049:025, 049:043, 049:044, 049:060, 049:062, 049:063, and any course numbered 049:100 and above.

**Opportunities for Nonmajors**

Students in other majors who have an interest in the theatre arts may take courses in the department. The following courses are open to nonmajors.

049:001 Art of the Theatre 3 s.h.
049:002 Theatre and Society: Ancients and Moderns 4 s.h.
049:003 Theatre and Society: Romans, and Rebels 4 s.h.
049:020 Basic Acting 3 s.h.
049:021 Basic Acting II 3 s.h.
049:042 Clothing as Non verbal Communication 3 s.h.
049:062 Playwriting I 3 s.h.
049:072 Shakespeare 3 s.h.
049:100 African American Theatre I 3 s.h.
049:101 African American Theatre II 3 s.h.
049:192 Topics: Culturally Diverse Theatre 3 s.h.

Nonmajors with backgrounds in the fine arts may take the following with consent of instructor.

049:134 Scene Design I 3 s.h.
049:135 Costume Design I 3 s.h.
049:136 Lighting Design I 3 s.h.

Other courses may be open to nonmajors with consent of the instructor.

**Graduate Program**

**Master of Fine Arts**

The M.F.A. programs are dedicated to creative development of theatre artists. Graduates have a solid background in major performance theories, dramatic literature, and practices of the past and present as well as in the craft of their chosen specialties.

Special attention is given to understanding the role and importance of live theatre in society. Interactions among the various theatre disciplines are emphasized, both in classes and through the department’s extensive production program. Particular emphasis is placed on the development of new works for the theatre.

Students who demonstrate exceptional ability in acting, directing, dramaturgy, playwriting, design, or stage management may apply for admission to the program of study and production leading to the M.F.A. Admission is based on interview, audition, and/or a portfolio of relevant work, the undergraduate record or other proof of artistic accomplishment, and letters of recommendation.

Submission of playscripts is the most important element in gaining admission to the Playwrights’ Workshop.

**Degree Requirements**

Students normally must complete six semesters in residence (internships may be substituted), and the requisite number of graduate semester hours in the individual program. They also must make normal progress toward completion of the degree requirements to remain in the program—that is, they must maintain a g.p.a. of at least 3.00 overall and in all course work within the primary area of concentration, and they must build a record of substantial creative work of high quality.

Students who fail to make normal progress are placed on academic probation and given one additional semester to demonstrate their qualifications for earning the degree.

Contact the Department of Theatre Arts for specific information on any of the M.F.A. programs.

**Facilities**

The University of Iowa has one of the finest educational theatre complexes in the country. The Theatre Building offers four theatres and up-to-date facilities for classroom, laboratory, shop, and performance work.

The E.C. Mabie Theatre, a continental-style, 477-seat proscenium playhouse, is one of the finest theatres of its type in the United States. The David Thayer Theatre is a “black box.”
production space; its flexible seating units accommodate from 140 to 225 people and allow modification of space and audience relationships. Theatre B, which seats 144, is an open-stage theatre dedicated primarily to the production of new and experimental works. The flexible studio theatre seats 50.

In addition to classrooms for acting and directing, several spaces are designed for teaching particular aspects of dramatic studies. The Cosmo Catalano Acting Studio is for study of movement and motion by acting students. The Amie Gillette Design Studio serves as classroom and studio workshop for design students.

To support its production schedule and to provide students with an appropriate range of experience, the department maintains shops for building, painting, maintaining, and storing scenery, costumes, and properties. Using these shops, students learn to work in metal, plastics, canvass, and wood.

**Productions**

The Department of Theatre Arts presents around 25 public productions each year. These include a subscription series of five plays, a festival of five new works by students, three productions by Iowa Summer Repertory Theatre (a professional company that also employs students), and other productions, many of them new plays.

Special attention is given to the process of developing new works and to the collaborative process that involves writers, directors, designers, dramaturgs, stage managers, and actors. Graduates, undergraduates, faculty, and visiting guest artists work together on large and small projects throughout the year and in a special summer repertory season.

**Courses**

### Primarily for Undergraduates

**049:001 Art of the Theatre** 3 s.h.
Fundamentals of acting, playwriting, directing. GE: fine arts or humanities.

**049:002 Theatre and Society: Ancients and Moderns** 4 s.h.
Representative plays as performed in social contexts of ancient Egypt, classical Greece, Rome, India, and Japan; and medieval and early modern Europe. GE: fine arts or historical perspectives.

**049:003 Theatre and Society: Romantics and Rebels** 4 s.h.
Representative plays as performed in social contexts of revolutionary and modern Europe and postwar United States. GE: fine arts or historical perspectives.

**049:020 Basic Acting** 3 s.h.
Concentration, relaxation, imagination, observation, communication, sensory awareness. Development of theatrical creativity through objectives, obstacles, action, conflict, spontaneity, development of a scene from scripts. GE: fine arts or humanities. Prerequisite: closed to theatre arts majors.

**049:021 Basic Acting II** 3 s.h.
Continuation of 049:020, emphasis on development of scenes. GE: fine arts or humanities.

**049:029 First-Year Seminar** 1-2 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

**049:042 Clothing as Nonverbal Communication** 3 s.h.
How clothing communicates culture, gender, self-concept, age, occupation, values, status, tastes, sexuality; clothing for international business, children, the elderly; fashion theory. Prerequisite: g.p.a. of at least 2.50. Same as 036:020.

**049:043 Elements of Design** 3 s.h.
Development of visual literacy; manipulation of line, shape, color, value, texture, form; development of designs for theatre through techniques explored in class.

**049:044 Theatre Crafts** 3 s.h.
Backstage operations, wardrobe, scenery, properties, lighting; sound. Prerequisite: theatre arts major or consent of instructor.

**049:045 Production: Run Crew** 1-2 s.h.
Experience as run crew member in scenery, props, or costumes; or light board, sound board, or follow-spot operator; for mainstage production. Prerequisite: 049:044 or 137:050. Same as 137:051.

**049:046 Production: Crew Chief** 2 s.h.
Experience as master electrician, stage manager; assistant stage manager, wardrobe master, production carpenter, or properties assistant for single production. Prerequisites: 049:044 and 049:045.

**049:047 Production: Construction** 1-2 s.h.
Production work in scenery, costume, or electrics shop. Prerequisites: 049:044, 049:045, and consent of instructor.

**049:060 Playwriting Analysis** 3 s.h.
Basic skills in critical reading and close analysis of dramatic text, with focus on dramatic structure, challenges of putting texts into production.

**049:062 Playwriting I** 3 s.h.
Elements of playwriting; emphasis on analysis and discussion of original student writing. GE: fine arts or humanities.

**049:063 Playwriting II** 3 s.h.
Continuation of 049:062; original student writing, one-act play form. Prerequisite: 049:062.

**049:072 Shakespeare** 3 s.h.
Same as 008:147.

**For Undergraduate and Graduate Students**

### Acting and Directing

**049:025 Acting I** 3 s.h.
Development of creativity, imagination, and openness through exercises to engage mind, body, and voice in theatrical play and scene work. Prerequisite: consent of instructor.

**049:101 Drama in the Classroom** 3 s.h.
Same as 076:185.

**049:102 Acting for Singers** 2 s.h.
Same as 025:175.

**049:103 Voice/Speech/Text—Speaking in Public** 3 s.h.
How to be an effective and confident communicator; exercises designed to develop and improve vocal sound, vocal strength, clarity of speech, appropriate interpretation of text.

**049:105 Movement for Performers** 2-3 s.h.
Same as 025:167, 137:160.

**049:106 Singing for Actors** 2 s.h.
Skill development for healthy, effective singing in the musical theatre style; techniques of vocal production through breath management, resonance, articulation, flexibility, song interpretation, and repertoire. Same as 025:169.

**049:107 Drama Therapy** 3 s.h.
Basic principles and practices of drama therapy; exercise, theory, and technique; how to use dramatic processes to encourage psychological growth and change.

**049:108 Dance Kinesiology** 3 s.h.
Movement analysis. Same as 137:147.

**049:109 Introduction to Arts Management** 3 s.h.
Historic and contemporary theatre management; theatre structures and operations; emphasis on not-for-profit organizations, unions, regional theatre.

**049:120 Acting II** 3 s.h.
Extension of work begun in 049:025; scene study, with focus on contemporary realism and development of collaborative dynamic. Prerequisites: 049:025, audition, and consent of instructor.

**049:121 Advanced Scene Study** 3 s.h.
Development of dramatic and creative process through performance of complex, challenging scenes. Prerequisites: 049:120, 049:125 or 049:127, audition, and interview.

**049:122 Acting with Verse** 3 s.h.
Approaches to poetic material; emphasis on Shakespeare; contemporary scenes written in poetic or abstract style. Prerequisites: 049:120, 049:125, and consent of instructor.

**049:123 Alternative Approaches to Acting** 3 s.h.
Methods of acting expression that differ from standard realism/cognitive approach; acting on impulse, internal/external “mask,” story theatre, working within and against type, use of psycho-physical techniques. Prerequisites: 049:120, 049:127, and consent of instructor.

**049:124 Acting: Special Topics** 3 s.h.
Specialized study in a specific aspect or theory of acting. Prerequisite: consent of instructor.

**049:125 Voice for the Actor** 1-3 s.h.
Progressive development of voice and speech for theatre; psychological awareness, relaxation, breathing, freeing the sound channel, resonance, articulation; application of voice work through prose, poetry, text. Prerequisite: 049:025.

**049:126 Voice, Text, and the Actor** 3 s.h.
Vocal study of prose poetry/dramatic text to achieve connection to language—emotion, images, and sensuality connected to a fully released voice; emphasis on Shakespearean verse. Prerequisite: 049:125.

**049:127 Theatre Movement** 3 s.h.
The body as a tool for dramatic expression; basic principles and practices of stage movement; approaches to physical technique, mime/movement studies, ensemble production projects. Prerequisite: theatre arts major.

**049:128 Movement Styles** 3 s.h.
Intensive study of a selected movement style, such as mask, clowning, melodrama, mime, commedia dell’arte, stage combat; presentation of student projects. Prerequisite: 049:127 or consent of instructor.

**049:129 Stage Combat** 3 s.h.
Principles, safety, techniques of nonviolent stage combat for actor, director, choreographer.

**049:130 Directing I** 3 s.h.
Basic elements of stage direction; exercises in composition, emphasis, movement, rhythm, directorial analysis; director’s role in production process; short scenes, projects, papers. Prerequisites: 049:025, 049:043, 049:060, and consent of instructor.

**049:132 Stage Management** 3 s.h.
 Duties and procedures of stage management; focus on development of production from preparation to work through performance; examine role of stage manager in collaboration. Prerequisite: 049:044 or consent of instructor.

**049:200 Stage Management: Special Topics** 3 s.h.
Topics in stage management, arts production, and their professional practice. Repeatable. Prerequisites: 049:133 and consent of instructor.

**049:201 Voice for Performers** 2 s.h.
Same as 003:204, 025:216.

**049:220 Advanced Acting** 3 s.h.
Preprofessional training; may include psycho-physical training in impulse, openness and the “mask,” individual and group dynamics, improvisation, repetition, characterization and scenework, Shakespeare and stage, on-camera, development of professional work habits and skills, audition and interview. Repeatable. Prerequisite: consent of instructor.

**049:225 Vocal Technique** 3 s.h.
Skills training; voice and speech for the actor, phonetics, dialects, sound exploration, contemporary and classical text analysis. Repeatable. Prerequisite: consent of instructor.

**049:227 Movement Technique** 3 s.h.
Fundamental principles and practices required for physical acting technique; basic stage movement, stage combat, mime technique, LeCoeur-based improvisation; a new forms project. Repeatable. Prerequisite: graduate acting major.

**049:230 Director’s Seminar** 1-3 s.h.
Preprofessional training in stage direction; the art and craft of directing; research, practical experience; development of new pieces; approaches to a variety of theatrical materials through concept, type, style. Repeatable. Prerequisite: consent of instructor.

**049:233 Stage Management Seminar** 1 s.h.
Practice and techniques of stage management. Repeatable. Prerequisite: graduate major in stage management.
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Design

049:133 Theatre Design I 3 s.h.
The process of theatre design; how to research, conceptualize, and document ideas; experience using a script and working in scenery, costumes, lighting. Prerequisite: 049:043 and consent of instructor.

049:134 Scene Design I 3 s.h.
The development of theatre scenery; how to research, conceptualize, and express ideas through rendering and swatching, historical orientation. Prerequisite: 049:043.

049:135 Costume Design I 3 s.h.
The development of theatre costumes; how to research, conceptualize, and express ideas through rendering and swatching, historical orientation. Prerequisite: 049:043.

049:136 Lighting Design I 3 s.h.
How to research, conceptualize, and express ideas through light plots, other design paperwork, and theatre lighting design projects. Prerequisite: 049:043.

049:137 Scene Design II 3 s.h.
Design and execution of increasingly complex projects in a variety of formats, including refined perspective sketching, color models, properties drawing, more detailed drafting. Prerequisites: 049:060, 049:134, and consent of instructor.

049:138 Costume Design II 3 s.h.
Research, conceptual and character analysis skills, color, material, and volume as expressions of different styles. Prerequisites: 049:060, 049:135, and consent of instructor.

049:139 Lighting Design II 3 s.h.
Production styles and venues; skills developed through increasingly complex light plots, more precise paperwork. Prerequisites: 049:060, 049:136, and consent of instructor.

049:140 Sound Design for the Theatre 3 s.h.
Methods of sound recording, editing, reinforcement; how to conceptualize and express ideas for theatre production. Prerequisites: 049:060 and consent of instructor.

049:141 Period Styles for Theatre Designers 3 s.h.
Antiques of stage and period plays; how they apply to theatrical presentation; principles of interior architecture, furniture, clothing. Prerequisite: consent of instructor.

049:142 Textile Science 3 s.h.
Textile properties, fiber science, yarn and fabric construction, textile testing and standards, dyeing, finishing. Same as 097:107.

049:143 Sound Design II 3 s.h.
Sound designs for theatre using digital and analog equipment; concept development, design execution; focus on computer-aided design skills, design presentation, advanced editing techniques. Prerequisite: 049:140.

049:144 Drafting for Designers I 3 s.h.
Tools and techniques of drafting for theatre; development of plans, sections, elevations, detail drawings for scenery, manual and analytical skills. Prerequisite: consent of instructor.

049:145 Drafting for Designers II 3 s.h.
Computer drafting with AutoCAD, principles of theatre drafting, basic functions and commands, one-word editing skills. Prerequisite: 049:144.

049:146 Drawing and Rendering for the Theatre 3 s.h.
Development of artistic skills and documentation techniques through studio work in drawing, painting, model craft projects for theatre. Prerequisite: consent of instructor. Pre or corequisite: 049:043 or admission to M.F.A. program.

049:147 Technical Production I 3 s.h.
Scene construction techniques, including stage carpentry, softgoods, theatrical rigging, drafting, management procedures. Prerequisite: 049:044 or consent of instructor.

049:148 Technical Production: Special Topics 3 s.h.
Skill development and construction techniques, including work in plastics, metals, mechanics, electronics. Prerequisite: 049:044 or consent of instructor.

049:151 Scenic Art for Designers 3 s.h.
Techniques in scenic art for the theatre; classical trompe l’oeil scene painting, sculpting with nontraditional materials, finishing. Prerequisite: consent of instructor.

049:152 Costume Crafts I 3 s.h.
Pattern drafting, draping, basic costume construction techniques. Prerequisite: consent of instructor.

049:153 Costume Crafts II 3 s.h.
Supporting crafts used in costume building; projects using techniques such as simple millinery, mask making, dyeing, fabric painting, leather work, and so forth. Prerequisites: 049:152 and consent of instructor.

049:157 Concepts in Drawing I 3 s.h.
Same as 01F:105.

049:158 Environmental Design I 3 s.h.
Same as 01F:137.

049:159 Introduction to 3-D Computer Modeling 3 s.h.
Theoretical and practical aspects of computer-assisted three-dimensional modeling and animation, using supercomputing graphics workstations; rendering scenes, lighting, key frame animation. Prerequisite: consent of instructor. Same as 01L:142.

049:162 3-D Computer Modeling Studio 3 s.h.
Three-dimensional computer modeling projects of student's design, with weekly discussion. Prerequisites: 049:159 and consent of instructor. Same as 01L:145.

049:237 Scene Design III 3 s.h.
Complex assignments in theatre, dance, opera, documentation. Prerequisite: consent of instructor.

049:238 Costume Design III 3 s.h.
Advanced projects in costume design; psychological effect of design elements; preparation of costume designs for production. Prerequisite: 049:138.

049:239 Lighting Design III 3 s.h.
Advanced projects in venues such as dance, opera, industrials; preparation of lighting designs for productions. Prerequisite: 049:139.

049:240 Scene Design IV 3 s.h.
Advanced projects; production problems and techniques; development of clarity and speed in conceptualizing and documenting designs. Prerequisite: consent of instructor.

049:241 Costume Design IV 3 s.h.
Analytical and studio skills for advanced projects in wide ranging venues, including music, dance, opera. Prerequisite: consent of instructor.

049:242 Lighting Design IV 3 s.h.
Advanced projects in a variety of venues; development of clarity in concepts and design documentation. Prerequisite: consent of instructor.

049:243 Scene Design V 3 s.h.
Portfolio development; collaborative. Prerequisite: consent of instructor.

049:244 Costume Design V 3 s.h.
Portfolio development; collaborative. Prerequisite: consent of instructor.

049:245 Lighting Design V 3 s.h.
Portfolio development; collaborative. Prerequisite: consent of instructor.

049:249 Production Management 3 s.h.
Organization and supervision of theatre productions; procedures, personnel, equipment, facility and budget management, scheduling, coordination. Prerequisite: graduate major in stage management.

049:251 Internship in Design 1-6 s.h.
Experience as designer or assistant designer with a professional theatre, dance, or opera company or with a professional design studio. Prerequisites: M.F.A. major in theatre design and consent of instructor.

049:271 Orientation to Collaboration 3 s.h.
Strategies for working collaboratively with members of faculty and students, from acting, directing, design, playwriting, dramaturgy, stage management. Repeatable. Prerequisite: M.F.A. standing in theatre.

049:272 The Collaborative Process 3 s.h.
Development of new plays, collaboratively created works. Repeatable. Consent: of instructor.

History, Literature, Dramaturgy

049:112 History of Theatre and Drama I 4 s.h.
Major developments in Anglo-European, Indian, Asian, African theatre and drama. Same as 01L:130. B.C. to C.E. 1700; sociopolitical, economic, cultural circumstances of original productions. GE: fine arts or historical perspectives. Offered fall semesters. Prerequisite: 049:040.

049:113 History of Theatre and Drama II 4 s.h.
Continuation of 049:112 (1700 to 1960), revolutionary and modern European theatre, culturally diverse past and present. U.S. theatre. GE: fine arts or historical perspectives. Offered spring semesters. Prerequisite: 049:040.

049:114 Contemporary Theatre and Drama 3 s.h.
Major developments in contemporary drama, theatre, performance since 1960, in contexts of Western European and North American social and theatrical history; representative plays and theatrical works in light of modern and postmodern theory and practice. GE: fine arts or humanities. Same as 008:164.

049:115 Performing America Queerly 3 s.h.
Same as 045:155, 154-135.

049:116 Dramatic Theory 3 s.h.
Theoretical questions of interest to dramatists and philosophers in Western and non-Western traditions; metaphysics of play; theories of character, psyche, self, narrative and non-narrative dramatic forms. Prerequisites: 049:060, 049:112, and 049:113.

049:117 American Drama Since 1945 3 s.h.
Same as 008:197.

049:118 American Women Playwrights: 19th and 20th Century 3 s.h.
How women in the United States have expressed themselves in theatre since 1900; diversity of voices in works by African American, Asian American, Latin American, Native American, European American, women-authored drama and production in relation to concurrent male-authored traditions and socioeconomic, political, cultural phenomena. GE: fine arts or humanities.

049:119 Drama of the Spirit 3 s.h.
Western and non-western dramatic texts that enact or describe journeys of the human spirit; textual analysis, investigation of the notion of spirit and its relation to dramatic form. Prerequisites: 049:060, 049:112, and 049:113.

049:180 Greek Drama in Translation GE: fine arts or humanities. Same as 206:108.

049:181 Medieval Drama Same as 008:144.

049:184 English Renaissance Drama Same as 008:145.

049:189 Twentieth-Century French Drama Same as 009:188.

049:190 African American Theatre I 3 s.h.
Works by African American playwrights and relevant historical documents, Africa through Black Renaissance; themes, history, sociopolitical context; artists forging theatrical paths under oppressive conditions; exploration through discussion, performance, literature-based course, workshop approach. Same as 129:175.

049:191 African American Theatre II 3 s.h.
Works by African American playwrights and relevant historical documents, Black Renaissance to present; themes, history, sociopolitical context; artists forging theatrical paths under oppressive conditions; exploration through discussion, performance, literature-based course, workshop approach. Same as 129:191.

049:192 Topics: Culturally Diverse Theatre 3 s.h.
Same as 129:191.

049:193 Studies in Drama Same as 008:167.

049:194 Dramaturgy Theory, practice: history in Europe and the United States; relationship to dramatic criticism; practical experience in critical writing, play analysis, dramatic research, conceptualization of productions; evaluation, advocacy, and development of new
Undergraduate Programs

Undergraduate courses in philosophy are designed to impart knowledge of fundamental issues and main developments in philosophy while strengthening logical and analytic skills. A major in philosophy develops abilities useful for graduate or professional work in many fields—law, for example—and for any situation requiring clear, systematic thinking. A graduate degree is necessary for college teaching in philosophy.

Bachelor of Arts

The B.A. degree requires at least 27 s.h. of credit in courses numbered from 026:061 through 026:198 and must include the following:

- 026:103 Introduction to Symbolic Logic 3 s.h.
- 026:111 Ancient Philosophy 3 s.h.
- One of these:
  - 026:114 Seventeenth-Century Philosophy 3 s.h.
  - 026:115 Modern Philosophy 3 s.h.
  - 026:116 Eighteenth-Century Philosophy 3 s.h.

The final 12 s.h. of philosophy courses used to complete the departmental requirement must be taken at The University of Iowa.

In addition to prerequisites listed for individual courses, considerations such as the order in which historical courses are taken are relevant to the effective structuring of a major’s undergraduate education. A student’s departmental adviser or the director of undergraduate studies can provide more information.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s Four-Year Graduation Plan.

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

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

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

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

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

Honors

The department administers an honors program for undergraduate students of superior ability. In order to be admitted to the honors program in philosophy, a student must be a member of the University Honors Program, which requires maintenance of a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information), and must have taken and passed at least three philosophy courses for the major. In order to graduate with honors in philosophy, the student must complete the regular requirements for an undergraduate major in philosophy with a g.p.a. of at least 3.40 in philosophy courses and must write an acceptable honors thesis on a significant topic in philosophy that interests him or her. The honors adviser can provide more information.

Minor

The minor in philosophy requires students to complete a minimum of 15 s.h. in philosophy courses with a g.p.a. of at least 2.00. Of the 15 s.h., a minimum of 12 s.h. must be taken at The University of Iowa in Department of Philosophy courses numbered above 100. Contact the director of undergraduate studies for more information.

Graduate Programs

The graduate program is designed to train teachers and scholars in philosophy. The main areas in the graduate curriculum are metaphysics, epistemology, history of philosophy, ethics, logic, and philosophy of science.

Master of Arts

The M.A. degree requires a minimum of 30 s.h. and may be taken without thesis. Requirements include courses in metaphysics and epistemology, history of philosophy, logic and philosophy of science, and ethics. An oral final examination also is required. There is no foreign language requirement. The director of graduate studies can provide more information.

Joint M.A./J.D. Degree

The department offers a joint degree program with the College of Law, in which students pursue an M.A. degree in philosophy in the College of Liberal Arts and Sciences simultaneously with a J.D. degree in the College of Law. The College of Law permits dual degree candidates to count up to 12 s.h. of course work taken in the joint program toward the 90 s.h. required for the J.D., providing the 12 s.h. are earned after admission to the joint degree program and after matriculation at the College of Law. The Department of Philosophy requires that 18 s.h. instead of the usual 24, of the 30 s.h. required for the M.A. be earned in graduate courses in philosophy. The department’s requirement of a minimum of 42 s.h. in philosophy in undergraduate and graduate work combined is reduced to 36 s.h. for students in the joint program.

Doctor of Philosophy

The Ph.D. degree requires a minimum of 72 s.h. of graduate credit. Candidacy for the doctoral program is determined by a formal vote of the entire faculty of the Department of Philosophy, usually after the student has completed three semesters of graduate study in residence.
For Undergraduates

The following courses are open only to undergraduates.

- **026:001 Problems of Moral Reasoning** 3 s.h.
  - Ethical thought, with emphasis on its implications for contemporary moral controversies.

- **026:033 Philosophy and Human Nature** 3 s.h.
  - Human nature and its relation to society, knowledge, religion, science, and freedom; philosophical and historical examination. GE: historical perspectives.

- **026:034 Philosophy and the Just Society** 3 s.h.
  - The nature of individuals and governments and the obligations they have to each other; philosophical and historical examination of theories from Plato through the 19th century. GE: historical perspectives.

- **026:036 Principles of Reasoning** 3 s.h.
  - Elementary logic and its applications. GE: quantitative or formal reasoning.

- **026:061 Introduction to Philosophy** 3 s.h.
  - Issues and arguments; topics may include rational belief, evidence, the self, causation, and the presuppositions of religion. GE: humanities.

For Undergraduate and Graduate Students

The following courses are closed to first-year students.

- **026:102 Introduction to Ethics** 3 s.h.
  - Analytical and historical introduction to ethical theories about issues such as the nature of goodness, the nature of right conduct. GE: humanities.

- **026:103 Introduction to Symbolic Logic** 3 s.h.
  - Main ideas and techniques of formal deduction.

- **026:104 Introduction to Philosophy of Science** 3 s.h.
  - Fundamental issues in scientific method, inductive reasoning, explanation, the distinctive nature of science.

- **026:111 Ancient Philosophy** 3 s.h.
  - Main trends and major figures, such as Plato and Aristotle.

- **026:112 Medieval Philosophy** 3 s.h.
  - Main trends and major figures, such as Augustine and Aquinas.

- **026:114 Seventeenth-Century Philosophy** 3 s.h.
  - Main trends, central arguments, major positions; Bacon and Descartes to Leibniz and Locke.

- **026:115 Modern Philosophy** 3 s.h.
  - Main trends and major figures from Descartes to Kant.

- **026:116 Eighteenth-Century Philosophy** 3 s.h.
  - Main trends, central arguments, major positions; Berkeley to Kant.

- **026:118 Twentieth-Century Philosophy** 3 s.h.
  - Main trends and major figures.

- **026:131 Aesthetics** 3 s.h.
  - Major problems in philosophy of the arts.

- **026:132 Introduction to Political Philosophy** 3 s.h.
  - Major problems.

- **026:133 Philosophy of History** 3 s.h.
  - Major problems: objectivity, historiographic methods and theory of interpretation, nature of historical explanations, reduction.

- **026:134 Philosophy of Religion** 3 s.h.
  - Medieval to contemporary treatments of central issues: the nature of faith; the existence and nature of God; religion and ethics; the interpretation of religious texts. Same as 032:146.

- **026:135 Philosophy of Law** 3 s.h.
  - Introduction; the nature of law, legal authority; legal reasoning and issues in criminal law, such as punishment, responsibility; issues in property law; constitutional law. Prerequisite: 026:034 or 026:102 or 026:132 or consent of instructor.

- **026:138 Philosophical Problems of Artificial Intelligence** 3 s.h.
  - Major issues and controversies.

- **026:141 Existentialist Philosophy** 3 s.h.
  - Main ideas of existentialism; emphasis on Kierkegaard, Nietzsche, Heidegger, Sartre.

- **026:143 Philosophy East and West** 3 s.h.
  - Comparative analysis of ideas in Eastern and Western philosophy.

- **026:144 Indian Philosophy** 3 s.h.
  - Main ideas, major texts. Same as 032:174.

- **026:145 Buddhist Philosophy** 3 s.h.
  - Introduction to main ideas. Same as 032:175.

- **026:147 Philosophical Issues** 3 s.h.
  - A philosophical topic or controversy.

- **026:148 Readings in Philosophy** 3 s.h.
  - Prerequisite: honors student.

- **026:149 Undergraduate Seminar in Philosophy** 3 s.h.
  - Selected problems. Prerequisite: consent of instructor.

- **026:150 Topics in Indian Philosophy** 3 s.h.
  - A single Indian philosopher or philosophical problem. Prerequisite: consent of instructor.

- **026:151 Topics in Ancient Philosophy** 3 s.h.
  - A single ancient philosopher or philosophical problem. Prerequisite: consent of instructor.

- **026:152 Plato** 3 s.h.
  - Main ideas, major texts. Prerequisite: consent of instructor.

- **026:153 Aristotle** 3 s.h.
  - Main ideas, major texts. Prerequisite: consent of instructor.

- **026:154 Augustine, Anselm, and Abelard** 3 s.h.
  - Views of one or more of these three philosophers; other important medieval and general philosophical trends of the early Middle Ages. Prerequisite: consent of instructor.

- **026:155 Aquinas, Scotus, and Ockham** 3 s.h.
  - Views of one or more of these three philosophers; other important medieval and general philosophical trends of the Middle Ages. Prerequisite: consent of instructor.

- **026:158 Descartes** 3 s.h.
  - Major works, such as the Discourse on Method, as well as lesser known works, such as the World. Prerequisite: consent of instructor.

- **026:160 Spinoza and Leibniz** 3 s.h.
  - Main ideas, major texts. Prerequisite: consent of instructor.

- **026:163 Berkeley** 3 s.h.
  - Immaterialism and its development. Prerequisite: consent of instructor.

- **026:164 Hume** 3 s.h.
  - Hume's metaphysical and epistemological views in their historical context. Prerequisite: consent of instructor.

- **026:166 Kant** 3 s.h.
  - Main ideas, major texts of Kant's metaphysics and epistemology. Prerequisite: consent of instructor.

- **026:171 Nietzsche** 3 s.h.
  - Main ideas, major texts. Prerequisite: consent of instructor.

- **026:173 Heidegger** 3 s.h.
  - Heidegger's major writings critically analyzed in relation to metaphysical and existentialist traditions. Prerequisite: consent of instructor.

- **026:174 Sartre** 3 s.h.
  - Phenomenological and existentialist works. Prerequisite: consent of instructor.

- **026:176 Frege and Russell** 3 s.h.
  - Main ideas, major texts. Prerequisite: consent of instructor.

- **026:177 Wittgenstein** 3 s.h.
  - Main ideas, major texts. Prerequisite: consent of instructor.

- **026:179 Quine** 3 s.h.
  - Main ideas, major texts. Prerequisite: consent of instructor.

- **026:180 Analytic Ethics** 3 s.h.
  - Topics in contemporary ethics. Prerequisite: consent of instructor.

- **026:182 History of Ethics I** 3 s.h.
  - Ancient and medieval ethics, with emphasis on Plato, Aristotle, Thomas Aquinas.

- **026:183 History of Ethics II** 3 s.h.
  - Early modern and 19th-century ethics, emphasizing the British moralists, Kant, the classical utilitarians. Prerequisite: consent of instructor.

- **026:185 Political Philosophy** 3 s.h.
  - Selected topics. Prerequisite: consent of instructor.

- **026:186 Metaphysics** 3 s.h.
  - Fundamental topics; major works, both classical and contemporary. Prerequisite: consent of instructor.

- **026:187 Epistemology** 3 s.h.
  - Contemporary topics. Prerequisite: consent of instructor.

- **026:188 Philosophy of Mind** 3 s.h.
  - Contemporary topics. Prerequisite: consent of instructor.

- **026:189 Philosophy of Language** 3 s.h.
  - Contemporary topics. Prerequisite: consent of instructor. Same as 103:163.

- **026:191 Mathematical Logic** 3 s.h.
  - Presentation of central mathematical concepts relating to decidability, completeness, model theory, second-order logic. Prerequisite: consent of instructor.

- **026:192 Modal Logic** 3 s.h.
  - Formal techniques developed and applied to problems in analysis and modal semantics; related philosophical issues. Prerequisite: consent of instructor.

- **026:194 Philosophy of Science** 3 s.h.
  - Central topics—for example, scientific explanation, confirmation,
Students who choose 029:128 as one of their two required laboratory courses are advised to take it before they take 029:132.

**OTHER REQUIRED COURSES**

- 029:027-029:028 Physics I-II 8 s.h.
- 029:029-029:030 Physics III-IV 8 s.h.
- 029:115 Intermediate Mechanics 3 s.h.
- 029:118 Statistical Physics 3 s.h.
- 029:129-029:130 Electricity and Magnetism 6 s.h.
- 029:140-029:141 Introduction to Quantum Mechanics I-II 6 s.h.

Two of these:

- 029:119 Introduction to Astrophysics I 3 s.h.
- 029:120 Introduction to Astrophysics II 3 s.h.
- 029:128 Electronics (may not be repeated) 4 s.h.
- 029:133 Advanced Laboratory 3 s.h.
- 029:171-029:172 Mathematical Methods of Physics 6 s.h.
- 029:174 Introduction to Laser Principles 3 s.h.
- 029:180 Electromagnetic Foundations of Optics 3 s.h.
- 029:182 Electro-Optics 3 s.h.
- 029:184 Optical Signal Processing 3 s.h.
- 029:186 Radio Astronomy 3 s.h.
- 029:192 Elementary Particles and Nuclear Physics 3 s.h.
- 029:193 Introductory Solid State Physics 3 s.h.
- 029:194 Plasma Physics 3 s.h.
- 029:195 Plasma Physics 3 s.h.

Undergraduate majors who plan to pursue graduate study are advised to go as far beyond the minimum requirements stated above as feasible, including further work in mathematics. In planning this work, students should keep the following in mind. The College of Liberal Arts and Sciences maximum hours rule permits students earning a B.A. or B.S. to apply no more than 50 s.h. from one department to the minimum 120 s.h. required for graduation, whether or not the course work is accepted toward major requirements. Students who earn more than 50 s.h. from one department may apply the additional semester hours to satisfy major requirements (if the department accepts them), and the grades they earn become part of their grade-point average. They cannot apply the additional semester hours to the minimum 120 s.h. required for graduation.

Students earning both a B.S. in Physics and a B.S. in Astronomy from the Department of Physics and Astronomy may apply more than 50 s.h. from that department to the 120 s.h. needed for graduation, but they must earn a minimum of 50 s.h. in course work taken outside the department.

**Bachelor of Arts in Physics**

The B.A. program is designed for students who wish to gain knowledge of physics but do not plan a research-oriented career in physics. This degree program is appropriate for those planning careers in medicine, law, science-related administration, business, technical writing, or secondary-school science teaching (see the Science Education section of the Catalog). The B.A. program requires fewer courses in physics than the B.S. program, and thus provides for a wider choice of electives.
**Computer Science Concentration**

**22C:016 Computer Science I: Fundamentals** 4 s.h.
- 029:021 Computer Science II: Data Structures 4 s.h.
- 029:118 Statistical Physics 3 s.h.
- 029:128 Electronics 4 s.h.
- 029:130 Electricity and Magnetism 3 s.h.
- 029:132 Intermediate Laboratory 3 s.h.

**Solid-State Electronics Concentration**

- 029:118 Statistical Physics 3 s.h.
- 029:193 Introductory Solid State Physics 3 s.h.
- 055:032 Introduction to Digital Design 3 s.h.
- 055:040 Linear Systems I 3 s.h.
- 055:041 Electronic Circuits 4 s.h.
- 057:017 Computers in Engineering 3 s.h.
- 057:018 Principles of Electronic Instrumentation 4 s.h.
- 059:006 Engineering Problem Solving II 3 s.h.
- 059:008 Engineering Fundamentals II: Electrical Circuits 3 s.h.

**Optics Concentration**

- 029:027-029:028 Physics I-II 8 s.h.
- 029:129 Electricity and Magnetism 3 s.h.
- 029:180 Electromagnetic Foundations of Optics 3 s.h.

**Medical Physics Concentration**

- 002:010-002:011 Principles of Biology I-II 8 s.h.
- 004:011-004:012 Principles of Chemistry I-II 8 s.h.
- 004:121-004:122 Organic Chemistry I-II 6 s.h.
- 004:141 Organic Chemistry Laboratory 3 s.h.
- 029:128 Electronics 4 s.h.
- 029:132 Intermediate Laboratory 3 s.h.

**MEDICAL PHYSICS CONCENTRATION**

- 029:137 Astronomical Laboratory 2 s.h.
- 029:132 Intermediate Laboratory 3 s.h.
- 029:130 Electricity and Magnetism 3 s.h.
- 029:133 Advanced Laboratory 3 s.h.
- 029:141 Introduction to Quantum Mechanics II 3 s.h.
- Two additional advanced biological sciences courses

**Bachelor of Science in Astronomy**

A balanced and integrated program of astronomy, mathematics, and physics courses is required for the B.S. degree in astronomy. This program prepares students for advanced study in astronomy or astrophysics or serves as an interesting choice of major for a liberal arts and sciences education.

The following courses or their equivalents are required for the Bachelor of Science with a major in astronomy.

**Mathematics**

- 22M:025-22M:026 Calculus I-II 8 s.h.
- 22M:047 Linear Algebra and Differential Equations for Scientists 3 s.h.
- 22M:048 Vector Calculus for Scientists 3 s.h.

**Other Required Courses**

- 029:027-029:028 Physics I-II 8 s.h.
- 029:029-029:030 Physics III-IV 8 s.h.
- 029:061-029:062 General Astronomy 8 s.h.
- 029:115 Intermediate Mechanics 3 s.h.
- 029:119-029:120 Introduction to Astrophysics I-II 6 s.h.
- 029:129-029:130 Electricity and Magnetism 6 s.h.
- 029:137 Astronomical Laboratory 2 s.h.
- 029:140 Introduction to Quantum Mechanics I 3 s.h.

**Solid-State Electronics Concentration**

- 029:118 Statistical Physics 3 s.h.
- 029:119-029:120 Introduction to Astrophysics I-II 6 s.h.
- 029:128 Electronics 3 s.h.
- 029:132 Intermediate Laboratory 3 s.h.
- 029:180 Electromagnetic Foundations of Optics 3 s.h.

**Optics Concentration**

- 029:118 Statistical Physics 3 s.h.
- 029:119-029:120 Introduction to Astrophysics I-II 6 s.h.
- 029:128 Electronics 3 s.h.
- 029:193 Introductory Solid State Physics 3 s.h.

**Medical Physics Concentration**

- 002:010-002:011 Principles of Biology I-II 8 s.h.
- 004:011-004:012 Principles of Chemistry I-II 8 s.h.
- 004:121-004:122 Organic Chemistry I-II 6 s.h.
- 004:141 Organic Chemistry Laboratory 3 s.h.
- 029:128 Electronics 4 s.h.
- 029:132 Intermediate Laboratory 3 s.h.

**Bachelor of Arts in Astronomy**

The B.A. program is designed for students who wish to gain considerable knowledge of astronomy but who do not plan a research-oriented career in the field. This degree program is appropriate for those preparing careers in secondary school science teaching or science-related administration (see the Science Education section of the Catalog). It also is appropriate for those preparing for professional school. The B.A. program requires fewer courses in physics and mathematics than the B.S. program, and thus provides for a wider choice of electives.

The following courses or their equivalents are required for the B.A. with a major in astronomy.

- 22M:025-22M:026 Calculus I-II 8 s.h.
- 029:027-029:028 Physics I-II 8 s.h.
- 029:029-029:030 Physics III-IV 8 s.h.
- 029:061-029:062 General Astronomy 8 s.h.
- 029:115 Intermediate Mechanics 3 s.h.
- 029:119-029:120 Introduction to Astrophysics I-II 6 s.h.
- 029:137 Astronomical Laboratory 2 s.h.
- 029:140 Introduction to Quantum Mechanics I 3 s.h.
- 029:128 Electronics 3 s.h.
- 029:193 Introductory Solid State Physics 3 s.h.

**Double Major in Physics and Astronomy**

Students working toward a double major in physics and astronomy must earn a minimum of 56 s.h. in course work outside physics and astronomy. Students interested in the double major should consult with their adviser.

**Four-Year Graduation Plan**

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

**B.A. in Astronomy**

Before the third semester begins: math through calculus I and II, physics I and II, and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: physics III and IV, at least one more course in the major, and at least one-half of the semester hours required for graduation

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

Before the eighth semester begins: nine courses in the major

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

**B.S. in Astronomy**

Before the third semester begins: calculus I and II, physics II, and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: math through vector calculus, physics III and IV, linear algebra, two other courses in the major, and at least one-half of the semester hours required for graduation

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

Before the eighth semester begins: three more courses in the major

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

**B.A. and B.S. in Physics**

Before the third semester begins: calculus II, physics II, and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: physics III and IV, linear algebra and differential equations, vector calculus, up to two more courses in the major, and at least one-half of the semester hours required for graduation

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

Before the eighth semester begins: two or three more courses in the major

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

**Honors**

Junior and senior majors who are members of the University Honors Program may take 6-8 s.h. of 029:099 Honors Seminar and conduct an investigation with the guidance of a faculty member as part of their programs for the B.A. or B.S. with honors in physics, applied physics, or astronomy. They must present a written research report (honors thesis) and describe the results of the research at a departmental seminar.

The University Honors Program requires members to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information).

**Minor in Physics**

A minor in physics requires 15 s.h. in physics with a g.p.a. of at least 2.00. Those 15 s.h. must include 12 s.h. taken at The University of Iowa. The 12 s.h. must be chosen from 029:029 (prerequisites: 029:027 and 029:028, or 029:081 and 029:082), 029:030, and 100-level physics courses.

There is no minor offered in applied physics.

**Minor in Astronomy**

A minor in astronomy requires 15 s.h. in astronomy and physics courses with a g.p.a. of at least 2.00; 12 s.h. must be taken at The University of Iowa. The 15 s.h. must include 12 s.h. of upper-level course work with 6 s.h. chosen from the following:

- 029:119-029:120 Introduction to Astrophysics I-II 6 s.h.
- 029:137 Astronomical Laboratory 2 s.h.

The remaining course work may be chosen from any 100-level astronomy or physics courses.

**Graduate Programs**

Two advanced degrees are offered in physics: the Master of Science and the Doctor of Philosophy. One is offered in astronomy: the Master of Science and the Doctor of Philosophy. The student's plan of study should provide for as much advanced work as aptitude and previous preparation permit.

**Master of Science in Astronomy**

The M.S. in astronomy is offered either with or without thesis. The degree may be terminal or an intermediate step toward a Ph.D. in either the final examination is oral, conducted by a committee of three faculty members.

The M.S. with thesis requires a minimum of 30 s.h. of graduate work in courses numbered 170 or above, with at least 15 s.h. at the 200 level, and a g.p.a. of at least 3.00. The 30 s.h. must include at least 6 s.h. chosen from 029:220, 029:232, 029:233, 029:234, and 029:235. No more than 6 s.h. of the required 30 s.h. may be in 029:220 and 029:232. Seminars do not count for credit toward the 30 s.h. requirement. Up to one-third of the course work may be in graduate courses in related fields, such as meteorology.
Doctor of Philosophy in Physics

Graduate students who wish to pursue a Ph.D. in physics must pass a qualifying examination in all principal areas of physics at the level of first-year graduate work. The examination, which may be repeated only once, is given each year before the beginning of the fall semester. Students must pass the examination for the first time no later than the start of their third year of graduate study.

All Ph.D. candidates must take comprehensive examinations; participate in advanced seminars; do original research in experimental physics, theoretical physics, or astrophysics; and prepare and defend a written dissertation based on this work.

The program of study for the Ph.D. with a major in physics includes thorough course work in both classical and quantum physics for all candidates, whether their specialized research is to be in an experimental or a theoretical area.

Students must take at least 24 s.h. of 200-level courses in the department, excluding 029:220, 029:281, 029:282, and seminars. The following courses are required.

* 029:171-029:172 Mathematical Methods of Physics 6 s.h.
  029:205 Classical Mechanics 3 s.h.
  029:212 Statistical Mechanics I 3 s.h.
  029:213-029:214 Classical Electrodynamics I-II 6 s.h.
  029:245-029:246 Quantum Mechanics I-II 6 s.h.

* Students who pass a written examination are exempt from being required to take 029:171-029:172 Mathematical Methods of Physics.

Advanced mathematics, such as complex variables and tensor analysis, is used freely in these courses. An introduction is given in 029:171-029:172 Mathematical Methods of Physics. The selection of less advanced course work depends on the adequacy of the students’ preparation for graduate work; students’ choice of more advanced and specialized courses depends on the direction in which their interests develop.

After a student has chosen a research specialty, he or she must submit a formal thesis proposal and defend the proposal in an oral comprehensive exam. The appropriate thesis adviser then becomes the candidate’s general adviser and the chair of the comprehensive and final examination committee. The comprehensive exam must be taken before the beginning of the fourth year of graduate study.

Ph.D. candidates are not recommended for the degree until they have written the dissertation in proper form for formal publication and have submitted it for publication, with the approval of the research adviser, to a widely distributed, refereed scientific journal.

Financial Support

Students qualified for graduate study are encouraged to apply for fellowships and assistantships. Inquiries should be directed to the department chair.

Research, Facilities

The department has an excellent library and a number of well-equipped laboratories and observatories, as well as a student computer cluster for which students can obtain accounts. National supercomputers are accessed via the Internet. The central machine shop is fully equipped and staffed with skilled instrument makers and machinists, and there are several electronics and machine shops for the use of advanced students and the research staff.

Experimental research is conducted in astronomy (optical and radio), atomic and molecular physics, condensed matter physics, elementary particle physics, laser physics, medical physics, plasma physics, and space physics. Extensive facilities are available for construction of specialized research equipment and for processing and analysis of data.

Experiments on electrical and magnetic properties of materials, alloys, compounds, semiconductors, and high-temperature superconductors are included in the experimental condensed matter program.

State-of-the-art semiconductor materials and devices are grown in two molecular beam epitaxy machines. Ultrahit laser techniques are developed and used to probe electron transport, energy relaxation, recombination, and spin dynamics in the novel nanostructures grown in these machines. Experiments also are conducted on laser-induced coherent phenomena and coherent control of charge carriers in semiconductor nanostructures. The experimental condensed matter program is closely coordinated with the condensed matter theory group.

Plasma physics is an active area of experimental and theoretical research. Laboratory experiments studying plasma processes of importance in various space and astrophysical plasmas are performed in a Q machine, including experiments on waves and instabilities in dusty plasmas. Additional laboratory and microgravity experiments with dusty plasmas include studies of Coulomb crystals, shock waves, and complex fluids. Glow discharges for plasma processing applications are studied using laser diagnostics and numerical simulations. Wave propagation and plasma particle dynamics also are studied in collisionless plasmas through laboratory experiments. Laser techniques are developed for measuring plasma flow and following particle orbits. Plasma theory efforts include analytical and numerical investigations of magnetic reconnection and turbulence in space and astrophysical plasmas; collaboration with laboratory and space plasma experimental groups in strongly coupled dusty plasmas, waves, and instabilities; and free electron lasers and hydrodynamic turbulence.

State-of-the-art laser systems are available for high-resolution spectroscopic measurement and ultrafast studies of molecular structure, for collisional relaxation and nonlinear optical effects in atomic and molecular systems, and for plasma diagnostics.

Experimental research in elementary particle physics is carried out at Fermi National Accelerator Laboratory, Stanford Linear Accelerator Center, CERN in Switzerland, DESY in Germany, and other international laboratories. The present generation of high-energy experiments has been designed to probe both the strong nuclear force and the weak interactions.

The department is well-equipped for research and instruction in observational astronomy. The primary optical instrument is a fully automated 15-inch telescope at a dark-sky site in Arizona. There also is a fully automated 7-inch refractor on the roof of Van Allen Hall. All instruments are equipped with CCD cameras and a variety of filters, and are used for research projects as well as instructional laboratories at all levels. There are 3-meter and 4.5-meter radio telescopes on the roof of Van Allen Hall, which are used for instruction and student research projects.

Research programs in galactic and extragalactic radioastronomy are carried out using the facilities of the National Radio Astronomy Observatory, including the Very Large Array and the Very Long Baseline Array, one element of which is 10 miles north of campus. Current long-term research activities include studies of the center of the Milky Way galaxy; investigations of extragalactic radio sources; the formation of powerful winds in young, luminous stars; radio wave scattering in the interstellar and interplanetary media; and interacting binary stars.

Active theoretical research is carried on in astrophysics; atomic, molecular, and optical physics; condensed matter physics; elementary particle physics; laser physics; mathematical physics; nuclear physics; plasma physics; and space physics. An active mathematical physics seminar fosters the exchange of ideas between mathematics and physics.

The primary emphasis of Iowa’s program in experimental and theoretical space physics is on studies of cosmic and heliospheric physics, magnetospheric physics, and magnetosphere- ionosphere interactions. Facilities are available for designing and constructing spaceflight instruments. Investigators in the department have flown instruments for studying plasmas, energetic charged particles, auroral images, plasma waves, and radio emissions on a wide variety of terrestrial and planetary spacecraft, including Pioneer 10 and 11, Dynamics Explorer, Voyager 1 and 2, Galileo, and Polar.

Courses

Prerequisites and corequisites are specified as guides and may be waived by the instructor. Courses 029:003, 029:005, 029:006, 029:008,
Physics—Primarily for Undergraduates


Physics—Primarily for Undergraduate and Graduate Students

029:083 Modern Physics 3 s.h.
Wave mechanics, hydrogen atom, atomic and molecular structure, solid state physics, special relativity; primarily for engineering students. Prerequisite: 029:028 or 029:082.

029:084 Introductory Physics II Lab 1 s.h.
Laboratory for 029:082. GE: natural sciences. Prerequisite: 3 s.h. in 029:082 or equivalent.

029:093 Reading in Physics 1 s.h.
arr.

029:099 Honors Seminar 1 s.h.
Supervised original research leading to written report, oral defense. Prerequisite: junior or senior honors candidacy in physics or astronomy.

Physics—for Undergraduate and Graduate Students

029:103 Reading in Physics 1 s.h.
arr.

029:105 Special Topics in Physics 1 s.h.
arr.

029:115 Intermediate Mechanics 3 s.h.
Newtonian mechanics; nonrelativistic reference systems; central forces, celestial mechanics, rigid body motion, Lagrangian, Hamiltonian equations of motion; small oscillations. Prerequisites: 22M:028, or 029:011 or 029:012.

029:117 Optics 3 s.h.
Prerequisites: 029:108 or 029:115.

029:118 Statistical Physics 3 s.h.
Integrated introduction to subjects of thermodynamics, statistical mechanics, kinetic theory; emphasis on applications. Prerequisites: 029:130 or 029:135.

029:128 Electronics 4 s.h.
Design and construction of small circuits; use of measurement instruments—oscilloscope, multimeter, function generator; circuits, including transistors, operational amplifiers, digital analog-to-digital conversion; laboratory course for majors in UI science departments. Prerequisite: 029:012 or 029:081.

029:129 Electricity and Magnetism 3 s.h.
Electrostatics, magnetic fields, introduction to Maxwell’s equations. Prerequisites: 22M:028 or 22M:048, and 029:012 or 029:081 or 029:082.

029:130 Electricity and Magnetism 3 s.h.
Continuation of 029:129; magnetism, electromagnetic waves; A.C. circuits, applications of Maxwell’s equations to wave guides, antennas, optics, plasma physics, other topics. Prerequisite: 029:139.

029:131 General Laboratory 3 s.h.
Laboratory instruction and development, instrument repair, development of labs, teaching demonstrations, new hardware and software technologies, analysis on physics, but other applications covered. Offered only Thursday after Saturday & Evening Class Program.

029:132 Intermediate Laboratory 3 s.h.
Electricity, electronics; magnetism; optics; atomic, nuclear, plasma, solid state physics; techniques in data analysis, including error analysis. Prerequisites: 029:028 or 029:082, and 029:029 or 029:083. Corequisite: 029:129.

029:133 Advanced Laboratory 3 s.h.
Topics in electricity, electronics, magnetism, atomic, nuclear, plasma, solid state physics; techniques in data analysis, including error analysis.

029:140 Introduction to Quantum Mechanics I 3 s.h.
Superposition principle, Stern-Gerlach experiment, linear operators, measurement theory, time evolution, angular momentum, wave mechanics in one dimension, one-dimensional harmonic oscillator, two-body problems with central forces, the hydrogen atom. Prerequisites: 029:028 or 029:083, 029:115, and 22M:132 and 22M:082, or 22M:047 and 22M:048.

029:141 Introduction to Quantum Mechanics II 3 s.h.
Perturbation theory, variational methods, WKB approximation, scattering, Helium atom, periodic table, atomic spectroscopy, transition rates, other selected applications. Prerequisite: 029:140.

029:171 Mathematical Methods of Physics 3 s.h.

029:172 Mathematical Methods of Physics 3 s.h.
Continuation of 029:171; Hilbert space, special functions, Fourier transforms and expansions in orthogonal polynomials, differential equations, Green’s functions. Prerequisite: 029:171.

029:174 Introduction to Laser Principles 3 s.h.
Classical description of the fundamental principles of laser operation; cavity design, gain media, pumping mechanisms, operation, transient phenomena. Prerequisite: 029:130 or equivalent.

029:180 Electromagnetic Foundations of Optics 3 s.h.
Geometrical and physical optics; interference; diffraction; polarization, microscopic origins of macroscopic optical properties of matter; optical activity, electro-optical, magneto-optical, acousto-optical phenomena; spontaneous Brillouin, Raman, Rayleigh scattering. Prerequisite: 029:130 or equivalent. Same as 055:177.

029:182 Electro-Optics 3 s.h.
Propagation, nonlinear effects in bounded structures; optical birefringence; dielectric waveguides, fibers, electro-optic, acousto-optic modulation; optical detection, noise. Prerequisite: 029:130 or equivalent. Same as 055:179.

029:184 Optical Signal Processing 3 s.h.
Linear optics from perspective of Fourier analysis; impulse responses, convolution, transfer functions, coherence, interference, diffraction, image formation, Gaussian beam propagation, holography, sampling theory, optical information and signal processing. Prerequisite: 029:130 or equivalent. Same as 055:178.

029:192 Elementary Particles and Nuclear Physics 3 s.h.
Overview of nuclear structure; classification of nuclear states; nuclear reaction, nuclear reaction, quark model of hadrons; strong, electromagnetic, weak interactions of elementary particles; gauge theories, intermediate vector bosons, unification of electromagnetism and weak interactions. Prerequisites: 029:140.

029:193 Introductory Solid State Physics 3 s.h.
Phenomena associated with solid state; classification of solids and crystal structures, electronic and vibrational properties in solids; thermal, optical, magnetic, dielectric properties of solids. Prerequisites: 029:140; and 22M:028, or 22M:047 and 22M:048. Same as 055:173.

029:194 Plasma Physics 3 s.h.
Physics of ionized gases, including orbit theory, guiding center motion, adiabatic invariants, ionization balance description of plasmas by fluid variables and distribution functions; linearized wave motions, instabilities, magnetohydrodynamics. Prerequisite: 029:130.

029:195 Plasma Physics 3 s.h.
Continuation of 029:194, which is prerequisite, linear, nonlinear solutions of the Vlasov equation, kinetic theory of plasmas, including Landau damping and velocity space instabilities.

Physics—Primarily for Graduate Students

029:202 Workshops and Special Training in Physics 1 s.h.
arr.

029:203 Topics in Physics 1 s.h.
arr.

029:204 Physics for Undergraduates 3 s.h.
Prerequisites: 029:028, 029:044, 029:050, 029:051, 029:052, 029:061 and 029:062, and 029:081, 029:082, and 029:084 are approved for College of Liberal Arts and Sciences General Education in the natural sciences.
029:220 Individual Critical Study
(arr.)

Essay on topics chosen in consultation with faculty member. Prerequisite: candidacy for M.S. with critical essay.

029:222 Nonlinear Optics
3 s.h.

Classical treatment of second- and third-order optical nonlinearities; phase matching, harmonic generation, three- and four-wave mixing, self-focusing, self-phase modulation, stimulated scattering of light, applications. Prerequisite: 029:130 or equivalent. Same as O55:276.

029:224 Laser Principles
3 s.h.

Laser theory, stimulated emission, dispersion theory, broadening mechanisms; rate equations, gain saturation, optical resonators, mode-locking, O-switching techniques, survey of laser types, modes of operation. Prerequisite: 029:130 or equivalent. Same as O55:274.

029:225 Special Topics in Physics
(arr.)

Repeatable.

029:226 Quantum Electronics
3 s.h.


029:228 Topics in Quantum Electronics
3 s.h.

Quantum optics, optical properties of matter, laser science, photonics. Repeatable. Prerequisite: consent of instructor.

029:229 Semiconductor Physics
3 s.h.

Electronic, optical, and materials properties of semiconductors. Prerequisites: 029:193 and 029:246.

029:240 Medical Physics
4 s.h.

Interactions of radiation with matter, sources of radiation, dosimetry, applications of radiation in medicine. Prerequisite: 8 s.h. of physics or consent of instructor. Same as O77:211.

029:245 Quantum Mechanics I
3 s.h.

Nonrelativistic quantum mechanics, Schrödinger wave mechanics, Hilbert space methods, perturbation theory, scattering, spin and angular momentum, identical particles, selected applications, introduction to relativistic theory. Prerequisites: 029:140 and 029:141.

029:246 Quantum Mechanics II
3 s.h.

Continuation of 029:245. Prerequisite: 029:245.

029:247 Introduction to Quantum Field Theory
3 s.h.

Quantization of relativistic and nonrelativistic field theories, covariant perturbation theory, theory of renormalization, dimensional regularization, renormalization group theory, introduction to gauge theories and anomalies. Prerequisites: 029:140 and 029:141.

029:248 Quantum Gauge Theories
3 s.h.


029:261 Seminar: Plasma Physics
(arr.)

Current research. Same as O55:291.

029:262 Seminar: Solid State Physics
(arr.)

Current research.

029:266 Seminar: Space Physics
(arr.)

Current research.

029:268 Solar-Terrestrial Physics
2-3 s.h.

Atmosphere of sun, radio and particle emissions therefrom; solar wind; origin and nature of geomagnetic field; upper atmosphere of Earth, magnetospheres of Earth and other planets; propagation of energetic particles in interplanetary medium and their access to Earth. Repeatable.

029:281 Research: Physics
(arr.)

Prerequisite: consent of instructor. Repeatable.

029:291 Advanced Atomic and Molecular Physics
3 s.h.

Structure and processes, including scattering theory, radiative reactions, atomic and molecular photochemistry, astronomy. Prerequisite: 029:246 or consent of instructor.

029:294 Advanced Plasma Physics I
3 s.h.

Microscopic plasma behavior: statistical mechanics of plasmas; Liouville equation, BBGKY hierarchy, Fokker-Planck equation and relaxation processes, Balazs-Lenard equation, Vlasov equation and linearized wave motion, shocks, nonlinear plasma motions, and instabilities; fluctuations and radiation processes; topics from recent literature. Repeatable. Prerequisite: consent of instructor.

Astronomy—Primarily for Undergraduates

029:050 Stars, Galaxies, and the Universe
3-4 s.h.

Survey of stars, galaxies, and the universe; life cycles of stars, including black holes and pulsars; diversity of galaxies, including the Milky Way and distant quasars; cosmology—the history, structure, and fate of the universe; current results from recent astronomical observations; night sky observation. GE: natural sciences. Prerequisites: non-physics or astronomy major.

029:051 Introductory Astronomy Laboratory
1 s.h.

Laboratory for 029:050. GE: natural sciences. Prerequisite: 3 s.h. in 029:050 or equivalent.

029:052 Exploration of the Solar System
3 s.h.

Survey of earth’s solar system; physical properties of the planets, comets, and asteroids; origin of the solar system; search for extraterrestrial planetary systems; search for life on the universe; current results from recent planetary space missions; night sky observation. GE: natural sciences. Prerequisites: non-physics or astronomy major.

029:061 General Astronomy
4 s.h.

Qualitative and quantitative introduction to the development of astronomy, celestial mechanics, time, electromagnetic radiation, telescopes and astronomical instrumentation, planets, smaller solar system objects, stars, galaxies in general, cosmology, modern emphasis on observation with telescopes. GE: natural sciences. Prerequisite: four years of high school math or consent of instructor.

029:062 General Astronomy
4 s.h.

Continuation of 029:061; qualitative and quantitative introduction to properties and evolution of sun, stars, interstellar matter, galaxies; cosmology; laboratory emphasis on observation with telescopes. GE: natural sciences. Prerequisite: four years of high school math or consent of instructor.

029:094 Reading in Astronomy
(arr.)

029:137 Astronomical Laboratories
2 s.h.

Techniques and instrumentation in stellar and quantum mechanics and continuous spectra of stars, formation of absorption lines in spectra of stars. Prerequisite: 029:030, 029:061, 029:062, or consent of instructor.

029:186 Radio Astronomy
3 s.h.

Survey of radio astronomy, emphasizing technical aspects; radiation, antennas, receivers, radiotelescope interferometry, array synthesis, emission mechanisms, pulsars, supernova remnants, radio galaxies.

Astronomy—Primarily for Graduate Students

029:232 Theoretical Astrophysics I
3 s.h.

Radiative transfer; theory of stellar phenomena and continuous spectra of stars, formation of absorption lines in spectra of stars. Prerequisite: 029:271.

029:233 Theoretical Astrophysics II
3 s.h.

The interstellar medium: optical properties of small interstellar grains, radiative processes in interstellar gas, structure of HI regions, interstellar shock waves, supernova remnants, modification of interstellar medium by luminous stars, molecular clouds.

029:234 Stellar Structure and Evolution
3 s.h.

Structure of stellar interiors; nucleosynthesis in stars and evolution of stars.

029:235 Special Topics in Astrophysics
1-3 s.h.

Advanced lectures. Repeatable.

029:263 Seminar: Astrophysics
(arr.)

GE: current research.

029:282 Research: Astronomy
(arr.)

Original research in observational, theoretical astronomy.

Astronomy—Primarily for Undergraduates

029:104 Reading in Astronomy
(arr.)

029:106 Special Topics in Astronomy
(arr.)

029:119 Introduction to Astrophysics I
3 s.h.

Fundamentals of astrophysical processes in solar system objects, stars, nebulae, interstellar medium, galaxies; topics include stellar spectra, binary stars, stellar gas and dust, stellar and galactic kinematics, stellar evolution, stellar radiation, H0 regions, evolution, H0 regions, evolution, H0 regions, evolution, H0 regions, evolution.

029:120 Introduction to Astrophysics II
Continuation of 029:119, which is prerequisite. 3 s.h.

Undergraduate Programs

For more detailed descriptions of the undergraduate programs in political science, see Guide to Undergraduate Study in Political Science, available in the departmental office and on the web site.

Bachelor of Arts

Students seeking the B.A. degree with a major in political science must complete 33 s.h. of course work in political science.

Students must maintain a g.p.a. of at least 2.00 in all political science courses taken at The University of Iowa, and in all political science courses taken at other institutions and at The University combined.

P O L I T I C A L S C I E N C E

Chair: Michael S. Lewis-Beck
Professors emeriti: Lane Davis, Gerhard Loewenberg, Russell M. Ross
Associate professors: Cary R. Covington, Douglas Dion, Timothy M. Hagle, Kelly M. Kadera, Gary M. Segura
Assistant professors: Frederick J. Boehmke, Brian H. Lai, Erika Moreno, Denise V. Powers, Benjamin L. Read, David P. Redlawsk
Undergraduate degrees: B.A., B.S. in Political Science Undergraduate undegreeprogram: minor in Political Science Graduate degrees: M.A., Ph.D. in Political Science Web site: http://www.uiowa.edu/~polsci
Students must take at least 12 s.h. of the required 33 s.h. in political science at The University of Iowa. Credit from 030:029 First-Year Seminar, 030:191 Government Internship, and 030:192 Washington Internship cannot be applied to the major.

The College of Liberal Arts and Sciences maximum hours rule permits students earning a B.A. or B.S., to apply no more than 50 s.h. from one department to the minimum 120 s.h. required for graduation, whether or not the course work is accepted toward major requirements. Students who earn more than 50 s.h. from one department may use the additional semester hours to satisfy major requirements (if the department accepts them), and the grades they earn become part of their grade-point average; however, they cannot apply the additional semester hours to the minimum 120 s.h. required for graduation.

The following course work is required.

030:001 Introduction to American Politics 3 s.h.

Four of these:
030:020 Introduction to Politics 3 s.h.
030:030 Introduction to Political Thought and Political Action 3 s.h.
030:040 Introduction to the Politics of the Industrial Democracies 3 s.h.
030:041 Introduction to the Politics of Russia and Eurasia 3 s.h.
030:042 Introduction to the Politics of Developing Areas 3 s.h.
030:050 Introduction to Political Behavior 3 s.h.
030:060 Introduction to International Relations 3 s.h.
030:061 Introduction to American Foreign Policy 3 s.h.
030:070 Introduction to Political Communication 3 s.h.

Political science courses numbered 100 or above (at least 12 s.h. must be taken in regularly scheduled classroom work) 18 s.h.

Bachelor of Science

Students seeking the B.S. degree with a major in political science must complete 33 s.h. of course work. Residence rules and grade-point average requirements for the B.S. degree are the same as those for the B.A. degree. Credit for 030:029 First-Year Seminar, 030:191 Government Internship, and 030:192 Washington Internship cannot be applied to the major.

The College of Liberal Arts and Sciences maximum hours rule permits students earning a B.A. or B.S., to apply no more than 50 s.h. from one department to the minimum 120 s.h. required for graduation, whether or not the course work is accepted toward major requirements. Students who earn more than 50 s.h. from one department may use the additional semester hours to satisfy major requirements (if the department accepts them), and the grades they earn become part of their grade-point average; however, they cannot apply the additional semester hours to the minimum 120 s.h. required for graduation.

The following course work is required.

030:001 Introduction to American Politics 3 s.h.
Four of these:
030:020 Introduction to Politics 3 s.h.
030:030 Introduction to Political Thought and Political Action 3 s.h.
030:040 Introduction to the Politics of the Industrial Democracies 3 s.h.
030:041 Introduction to the Politics of Russia and Eurasia 3 s.h.
030:042 Introduction to the Politics of Developing Areas 3 s.h.
030:050 Introduction to Political Behavior 3 s.h.
030:060 Introduction to International Relations 3 s.h.
030:061 Introduction to American Foreign Policy 3 s.h.
030:070 Introduction to Political Communication 3 s.h.

All of these:
030:100 Understanding Political Research 3 s.h.
030:193 Undergraduate Research Tutorial (honors students may substitute 030:185 with the director of undergraduate study's consent) 3 s.h.

Additional political science courses at the 100 level 12 s.h.

At least 12 s.h. of 100-level courses must be taken in regularly scheduled classroom work; 030:100 is included in these hours; 030:185, 030:186, 030:190, 030:191, 030:192, 030:193, and 030:194 may not be included in these hours.

One of the sets of three mathematics courses listed under “Approved Math/Statistics Courses” 10-11 s.h.

Recommended but not required:
030:194 Senior Research Project/Paper 3 s.h.

APPROVED MATH/STATISTICS COURSES
The following sets of mathematics/statistics courses are approved for the B.S. Other sets of courses may be used with written approval of the B.S. adviser.

Set 1:
22M:017 Calculus and Matrix Algebra for Business (22M:021, 22M:025, or 22M:031 can be substituted) 4 s.h.
22S:102 Introduction to Statistical Methods 3 s.h.
22S:148 Intermediate Statistical Methods 3 s.h.

Set 2:
06E:071 Statistics for Strategy Problems 3 s.h.
22M:017 Calculus and Matrix Algebra for Business 4 s.h.
22S:008 Statistics for Business 4 s.h.

Set 3:
22M:025 Calculus I (22M:021 or 22M:031 can be substituted) 4 s.h.
22M:026 Calculus II (22M:022 or 22M:032 can be substituted) 4 s.h.
22S:102/07P:143 Introduction to Statistical Methods 3 s.h.

Emphases in Political Science

Students may elect to complete one or more emphases while fulfilling the requirements for the B.A. or B.S. degree. If they complete an emphasis and request recognition from the department, the emphasis is indicated on their transcripts at graduation.

Each emphasis consists of four courses. Emphases are available in American institutions, American political practice, international relations, law and politics, political communication, political economy, political processes, political theory, politics of democratization, politics of developing areas, and politics of industrial democracies. Lists of courses approved in each area are available in the department. For more information consult the Guide to Undergraduate Study in Political Science.

Teacher Licensure

Undergraduates planning to emphasize political science in their teacher training should consult the College of Education for requirements.

The courses 030:001 Introduction to American Politics and 030:110 The American Political System fulfill the requirement for Iowa teacher licensure.

Four-Year Graduation Plan

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

Bachelor of Arts

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

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

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

Before the eighth semester begins: eight courses in the major

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

Bachelor of Science

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

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

Before the seventh semester: eight courses in the major, including two of the three required
mathematics/statistics courses and 030:100, and at least three-quarters of the semester hours required for graduation.

Before the eighth semester begins: 11 courses in the major, including 030:193

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

Bachelor’s Degrees with Honors

In addition to the checkpoints for the B.A. and B.S. degrees, honors candidates must complete 030:180 before the seventh semester begins.

Honors

The program leading to a B.A. or a B.S. with honors is open to students with a cumulative University of Iowa g.p.a. of at least 3.33 and a g.p.a. of at least 3.33 in political science. To graduate with honors, students must maintain a g.p.a. of at least 3.50 in political science and a cumulative U.I. g.p.a. of at least 3.33 (contact the University Honors Program for more information). Students are encouraged to take 100-level honors seminars as often as possible, although the program requires only 9 s.h. of 100-level honors course work with a grade of B or higher in each course. Students also are encouraged to take honors sections of introductory courses whenever available.

Honors students must complete 030:180 Honors Seminar on the Study of Politics, preferably as sophomores. They also must take at least one additional honors seminar 030:181 Honors Seminar on American Politics, 030:182 Honors Seminar on Political Theory, 030:183 Honors Seminar on Comparative Politics, or 030:184 Honors Seminar on International Politics. This requirement also may be met by taking a 300-level course, with consent of the instructor. The last 3 s.h. required for graduation with honors in political science may be earned by completing 030:185 Honors Research Project or 030:186 Honors Senior Thesis. For more information, see the Guide to Undergraduate Study in Political Science or contact the department honors adviser.

National Honor Society

The department sponsors a chapter of Pi Sigma Alpha. Students who have a cumulative g.p.a. of at least 3.30, have attained junior standing, and have completed 15 s.h. of course work in political science are considered for membership. Consult the departmental honors adviser for more information.

Minor

To receive a minor in political science, students must take 15 s.h. in political science courses; 12 of the 15 s.h. must be at the 100 level, and 12 must be taken at The University of Iowa. Credit by exam is not accepted. Semester hours earned through a University of Iowa Regents program are considered residence semester hours.

Credit from 030:029 First-Year Seminar, 030:191 Government Internship, and 030:192 Washington Internship cannot be applied to the minor. Students may complete an area emphasis (see “Emphases in Political Science”).

Students must have a g.p.a. of at least 2.00 in all course work in the minor. No course taken pass/fail can be counted toward the minor.

Graduate Programs

For students planning academic careers, the department has a program leading to a Doctor of Philosophy in political science. The department usually offers the master’s degree only as a preliminary step toward the Ph.D.

Master of Arts Without Thesis

The requirements for the M.A. without thesis include completion of at least 30 s.h. of graduate work with a g.p.a. of at least 3.25 and review of the student’s record by a final examination committee, which may waive the final oral examination. If the evaluation committee convened at the end of the student’s first year of courses finds that a student’s work provides sufficient evidence of the research and writing skills ordinarily demonstrated in a master’s thesis, it may recommend that the student be permitted to proceed with a doctoral program.

When a first-year evaluation committee finds the quality of a student’s work inadequate for recommending continuation toward the Ph.D., the committee may recommend that the student seek the nontthesis M.A. as a terminal degree.

Doctor of Philosophy

The Ph.D. program in political science is designed to prepare students for research, teaching, and scholarly endeavor in academic settings and private or governmental institutions. It produces graduates who are deeply committed to the study of politics, familiar with fundamental knowledge about political processes, well-trained in methods and techniques for careful investigation of basic and applied research questions, and determined to make contributions to the discipline of political science and to society.

The department usually admits seven to ten Ph.D. students each year, so students work closely with faculty members, often collaborating on research and publication. Graduate students know one another and enjoy supportive, congenial working conditions.

Curriculum

Doctoral study usually lasts four to five years. The first-year curriculum for all students consists of core courses equally divided between substance and methodology. Emphasis is on basic research methods—including quantitative methods—that political scientists must understand thoroughly. Special attention is given to research design, collection of observations, analysis and interpretation of data.

The second and third years of study are spent in small seminars with focused, substantive topics. Papers written for these seminars might be submitted to journals or read at professional meetings. Students must take qualifying examinations by the end of the third year. They take their comprehensive examination (oral defense of the dissertation proposal) by the middle of the first semester of their fourth year.

The fourth and fifth years are spent on dissertation research and writing. Students who do basic research and gather data abroad often require an additional year to complete the dissertation.

Six fields of study are available: American politics, comparative politics, international relations, political theory, formal theory, and for those who wish to go beyond the basic methodology training, research methods. Each student chooses three fields of study for qualifying examinations.

A comprehensive statement of departmental requirements is set forth in Guide to Doctoral Study in Political Science, available in the departmental office and on the web site. For general graduate admission and degree requirements, see the Graduate College section of the Catalog.

Courses

For Undergraduates

Courses numbered below 100 are introductory; those numbered 100 to 199 are advanced.

*Courses 030:029, 030:191, and 030:192 cannot be applied toward the requirements for the major or minor in political science; 030:191 and 030:192 are offered only satisfactory/fail.

030:001 Introduction to American Politics 3 s.h.

Structure and processes; political institutions including Congress, presidency, Supreme Court, parties, interest groups, bureaucracy; discussion of framing and significance of the U.S. Constitution. GE: social sciences.

030:020 Introduction to Politics 3 s.h.

Introduction to selected processes, institutions, or behaviors central to the study of politics.

030:029 First-Year Seminar 1-2 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

030:030 Introduction to Political Thought and Political Action 3 s.h.

Common problems, literature, analytic techniques. GE: social sciences or humanities.

030:040 Introduction to the Politics of the Industrial Democracies 3 s.h.

Western European and/or Japanese systems of government compared; emphasis on similarities and differences between political parties, interest groups, legislative and executive institutions, policy-making processes, patterns of voting behavior and citizen participation. GE: social sciences.

030:041 Introduction to the Politics of Russia and Eurasia 3 s.h.

Russian politics; focus on problems of building new government institutions against backdrop of the communist legacy and the Soviet empire’s history; newly independent states, their struggles with political change. GE: social sciences.
030:042 Introduction to the Politics of Developing Areas 3 s.h.
Political systems of underdeveloped countries in Africa, Asia, Latin America; their development; how they interact with other developing countries and with developed countries. GE: social sciences.

030:050 Introduction to Political Behavior 3 s.h.
Patterns and basis of political behavior; emphasis on common elements across social, organizational, institutional settings. GE: social sciences.

030:060 Introduction to International Relations 3 s.h.
Theoretical introduction to contemporary international relations; emphasis on security and military affairs, international political economy, politics of global environmental problems. GE: social sciences.

030:061 Introduction to American Foreign Policy 3 s.h.
Foreign policies: goals, basic themes and general patterns, problems encountered by policy makers, means employed in dealing with other nations and international organizations, processes by which policies are formulated, factors that influence structure of policies. GE: social sciences.

030:070 Introduction to Political Communication 3 s.h.
Focus on essential knowledge and evaluation of current research in political science; interpretation of different quantitative techniques, with examples from current political science research.

030:070 Research in Judicial Politics 3 s.h.
Applied research training in courts and judicial politics. Prerequisite: 030:116 or 030:153 or 030:158.

030:108 Latino Politics 3 s.h.
Overview of the political position of Latinos and Latinas in the United States, Mexican Americans, Cuban Americans, and Puerto Ricans; each group's history and part in the American polity; Latinos and electoral process, policy process, government; the demographic category Latino, group identity and solidarity; Latinos in Iowa, the Midwest, the South; policy makers, including education, immigration, environmental justice.

030:109 Gay and Lesbian Politics 3 s.h.
Politics of homosexuality as a status-based interest group in the United States. Political organization and identity formation, gay/lesbian rights movement from World War II to Stonewall riots to present; politics, fundamentalist organizations, and initiatives limiting homosexual rights, gay and lesbian issues in state and local policies, AIDS and political action.

030:110 The American Political System 3 s.h.
Political behavior of American individuals and groups; institutional structure of political system. Prerequisite: closed to students who have taken 030:301.

030:111 Local Politics 3 s.h.
Models of city government, relation to state and federal governments; rights, liabilities of municipalities; city elections, campaigns, issues, role of pressure groups.

030:112 Minority Representation in American Politics 3 s.h.
Effects of voting rights legislation, election laws, interest groups, and institutional constraints on minority representation in American politics.

030:113 American State Politics 3 s.h.
Approaches to analysis of political behavior in American state governments; emphasis on cultures, parties, actors, processes, issues.

030:115 The Presidency 3 s.h.
Development, current status of the office, power, functions of American presidency; recruitment, multiple roles of chief executive; party, congressional, administrative, judicial relationships.

030:116 American Constitutional Law and Politics 3 s.h.
Role of U.S. Supreme Court in American political system, emphasis on analysis of Supreme Court cases.

030:117 Political Decision Making 3 s.h.
Political decision making processes, including executive, legislative, judicial, mass public; decision theories from economics, psychology, political science, organizational behavior; normative and descriptive approaches to decisions made by political actors.

030:118 American Political Development 3 s.h.
Transformations in American political behavior and institutions over time.

030:119 Problems in American Politics 3 s.h.
Problems in studying American system; structures, functions, behavior.

030:120 Public Administration and Bureaucratic Politics 3 s.h.
Administrative and organizational theory and behavior; techniques of management; relations between administration and other branches in federal and state governments; administrative politics.

030:122 Government Regulation of Business 3 s.h.
Regulation in the United States; theoretical and historical development of economic and social regulation, recent regulatory reforms and deregulation. Emphasis on how Congress, the president, courts affect regulatory agencies.

030:123 The Politics of Public Health 3 s.h.
How politics affects public health in the United States; public health policies and relations of executive and federal governments; effects of smoking, drug abuse, alcohol, food safety, prescription drugs.

030:124 Executive-Legislative Relations 3 s.h.
Conflict, cooperation between executive and legislative branches of U.S. government; budget politics, legislative veto, foreign policy.

030:125 Interest Groups 3 s.h.
Theory, organization, structure of interest groups; how they influence Congress, executive branch, courts, elections.

030:126 American Public Policy 3 s.h.
Functions and policies of national government; emphasis on domestic policy making, impact of public policy. Prerequisite: 030:001.

030:127 Political Campaigning 3 s.h.
Current state of political campaigning at all levels of government; history of campaigning; role of money and campaign finance reform, television and negative advertising, internet campaigning.

030:128 Direct Legislation 3 s.h.
Direct democracy—involvement by the citizenry without legislative action; origins, historical perspectives, usage across politics, regulations, focus on direct democracy, concerns about equality of access, tyranny of majority; United States, other countries.

030:130 Capitalism and Modernity 3 s.h.
Philosophical foundations of political economy; optimistic foundations, 19th-century challenges, current awareness of the problems of unlimited growth, unrestricted capital mobility versus economic philosophy of progress.

030:132 Modern Political Theory 3 s.h.
Major writers and intellectual trends in political thought from Renaissance and Reformation to 19th century.

030:133 Postmodern Political Theory 3 s.h.
Major writers and intellectual trends, from 19th century to World War II.

030:134 Problems of Democracy 3 s.h.
Theory and practice of democracy, democratic ideals and the institutions and practices necessary for those ideals to work in everyday politics—power, equality, majority rule, participation, trust, representation.

030:136 Strategic Politics 3 s.h.
How to isolate the most important elements in strategic political behavior, build models to understand them, recognize common scenarios, devise institutional resolutions to the Prisoners’ Dilemma and coordination problems.

030:137 Introduction to Political Economy 3 s.h.
Economic reasoning applied to political issues, including evolution of institutions, voting, leadership, interest groups, bargaining tactics, federalism, bureaucracy, income and compensation tax, legitimacy of democracy, electoral cycles in economic policy.

030:138 Current Political Theory 3 s.h.
Thinks or school of thought, from World War II to present.

030:139 Political Issues 3 s.h.
Representative issues: direct democracy, revolution, justice, obligation, technology, authority.

030:140 Government and Politics of Europe 3 s.h.
Political institutions, processes of selected European countries. GE: social sciences. Prerequisite: 030:040.

030:141 Russian/Post-Soviet Politics 3 s.h.
How Soviet politics developed and functioning 1917-1985; transformations leading to 1991 break-up; emerging forms of government, politics in former Soviet republics. GE: foreign civilization and culture. Prerequisite: 030:041 or consent of instructor.

030:142 Tracking Democratization in Post-Communist States 3 s.h.
Democracy’s varied experience in post-communist countries (Central Europe to Central Asia) that have similar political/economic paths, distinctive cultures/geographies; causes of success, failure. Prerequisite: 030:041 or consent of instructor.

030:143 Government and Politics of the Far East 3 s.h.
Cultures, institutions of government in countries of the Far East; focus on social, economic, historical environments. GE: foreign civilization and culture. Same as 030:178.

030:144 Latin American Government 3 s.h.
Governmental institutions, major interest groups, focus on area as a whole. GE: foreign civilization and culture.

030:145 Latin American Political Parties 3-4 s.h.
Changes posed by recent democracy in Latin America; issues of representation and governance across Latin America’s party systems; broad theoretical concepts linked to processes under way in the region.

030:146 African Development 3 s.h.
Problems of economic, political, spatial integration in Africa; patterns, processes of economic development and nation building. GE: foreign civilization and culture or social sciences. Same as 040:161.

030:147 Ethnicity, Nationalism, and States in Transition 3 s.h.
Ethnic identities in modern societies; nationalism and the rise and fall of nation-states; constitutional mechanisms and state policies for reducing conflict within divided states, between minority and majority populations.

030:148 Government and Politics of China 3 s.h.
Political development of China; Mao’s communist party’s rise to power and attempts to transform China in the Cultural Revolution; tensions and achievements of the reform era; whether partnership or conflict will define China’s relationship with the United States in the coming decades.

030:149 Problems in Comparative Politics 3 s.h.
Structures, functions, behaviors of different political systems.

030:150 Politics of Emerging Market Economies 3 s.h.
Politics and international economic relations of a select group of countries in Africa, Asia, and Latin America that have achieved rapid economic growth and/or successful democratization (e.g., Taiwan, Thailand, South Africa, Brazil, Mexico).

030:151 Political Leadership 3 s.h.
Foundations, effects of leadership in different political systems.

030:152 The Legislative Process 3 s.h.
Comparative legislative processes, behavior; focus on legislative systems analysis, legislative institutionalization, legislature and its environment, organizational constraints on legislative behavior; recruitment of legislators, web of legislative interactions, legislative voting behavior.

030:153 The Judicial Process 3 s.h.
Role of courts, lawyers, judges, interest groups in the American political system.

030:154 Political Psychology 3 s.h.
Political phenomena from psychological perspective; political behaviors of individuals, including decision making by elites and masses, evaluations of political candidates, mass mobilization, response to mass media; psychological concepts including stereotyping, social cognition, attitude, group identification.

030:155 Social Movements and Collective Action 3 s.h.
Rival theories of the occurrence, timing, form, and success of collective political behavior: revolutions, rebellions, social movements.

030:156 Ethnic Conflict in the International Arena 3 s.h.
Origins, nature, political consequences of communal cleavage and conflict in selected contemporary societies and international settings.

030:157 Voting Behavior and Elections 3 s.h.
Determinants of voting behavior; correlates of political participation, political apathy; socialization processes; nature and functions of elections.

030:158 The Criminal Justice System 3 s.h.
Role of courts, institutions that constitute and participate in the American criminal justice system.

030:159 Government and Politics of Eastern Europe 3 s.h.
Political institutions, processes in countries of central and eastern Europe, challenges of social, political, and economic transition and impact of different historical legacies.
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030:160 International Politics 3 s.h.
Concepts and problems; war, conflict resolution, political economy. Prerequisite: 030:060 or consent of instructor.

030:161 International Organization and World Order 3 s.h.
How and why states have developed regularized patterns of interaction in the spheres of economics and security through international organizations and international regimes; regional integration processes, multilateralism.

030:162 American Foreign Policies 3 s.h.
Ends pursued, problems encountered, means employed by the United States in relations with other states and international organizations. Prerequisite: 030:061 or consent of instructor.

030:163 Chinese Foreign Policy 3 s.h.
Foreign policy of the People's Republic of China from its founding in 1949 to present; important events (China's entry into the Korean War, Sino-Soviet split in the 1960s, rapprochement between China and the United States in the 1970s, tensions with Taiwan in the 1990s, China's entry into the World Trade Organization); competing explanations for these turning points, theoretical approaches to the study of international relations.

030:164 International Systems: Continuity and Change 3 s.h.
Continuity and change in patterns of international politics; usefulness of literature on international relations in explaining historically continuous and historically distinct international behaviors.

030:165 International Conflict 3 s.h.
International conflict as the primary ingredient of international politics; sources, causes, and effects of conflict, alliance structures, power distribution, logics, arms races, deterrence.

030:166 Global Political Communication 3 s.h.
How television and the internet are creating a global culture within which political leaders and nations interact.

030:167 Politics and the Multinational Enterprise 3 s.h.
Political factors affecting a firm's decision to go multinational; effects on home and host countries; political risk management; bargaining between states and corporations; regulation of multinationals by nation-states and international organizations; political implications of global mergers.

030:168 Politics of Terrorism 3 s.h.
Political motivations of terrorists; responses to terrorism; politics of prevention and preparation for terrorism; contemporary terrorist organizations, international responses to them.

030:169 Problems of International Politics 3 s.h.
Problems in studying international system, structures, functions, behavior.

030:170 The Politics of International Economics 3 s.h.
Political, historical dimensions; political aspects of trade, monetary systems, foreign investments, aid, dependency, global interdependence.

030:171 Public Opinion 3 s.h.
Role in making public policy; formation, change of political attitudes and opinions; political ideology; measurement of public opinion; how opinions are conducted; experience with interviewing and conducting public opinion research. Same as 034:153.

030:172 Political Communication and Cognition 3 s.h.
Representative topics: structures, processes of political thinking and talking, especially in electronic societies; ads, experts, hearings, ideologies, media, news, publics, schemas, speeches, symbols.

030:173 Voluntary Organizations and Politics in Comparative Perspective 3 s.h.
Politics of the voluntary sector in varied manifestations and symbols. Representative topics: structures, processes of political thinking and culture of globalization, major topics of debate on globalization.

030:174 Transitions to Democracy 3 s.h.
Comparative examination of transitions from authoritarian rule to democracy in eastern and southern Europe, Latin America, Asia, Africa. Prerequisite: 030:091 or 030:030 or 030:049 or 030:041 or 030:042 or 030:050 or 030:060 or 030:061 or 030:070.

030:180 Honors Seminar on the Study of Politics 3 s.h.
History, scope, methods, diverse issues, theories, techniques, systematic study. Prerequisite: honors standing in political science or consent of instructor.

030:181 Honors Seminar on American Politics 3 s.h.
Ideas, issues, methods in selected area. Prerequisite: junior or senior honors standing in political science or consent of instructor.

030:182 Honors Seminar on Political Theory 3 s.h.
Intensive study of ideas, issues, methods in an area of political theory. Prerequisite: junior or senior honors standing in political science or consent of instructor.

030:183 Honors Seminar on Comparative Politics 3 s.h.
Ideas, issues, methods in selected area. Prerequisite: junior or senior honors standing in political science or consent of instructor.

030:184 Honors Seminar on International Politics 3 s.h.
Ideas, issues, methods in selected area. Prerequisite: junior or senior honors standing in political science or consent of instructor.

030:185 Honors Research Project 3 s.h.
Special research assistance from a faculty member. Prerequisite: junior or senior honors standing in political science and consent of instructor.

030:186 Honors Senior Thesis 3 s.h.
Supervised research and writing. Prerequisites: honors standing in political science, more than one semester before graduation, and consent of instructor.

030:190 Independent Study 3 s.h.
Supervised projects. Prerequisite: consent of instructor.

030:191 Government Internship 1-3 s.h.
Undergraduate internships in state or national legislative, executive agency, or with election campaign affiliated. Prerequisite: consent of instructor.

030:192 Washington Internship 3 s.h.
Prerequisites: participation in Washington Center; political science major or minor, and consent of instructor.

030:193 Undergraduate Research Tutorial 3 s.h.
Individual training in applied research. Prerequisite: consent of supervising faculty member.

030:194 Senior Research Project/Paper 3 s.h.
Supervised research and writing. Prerequisites: major in political science, more than one semester before graduation, and consent of instructor.

030:200 Introduction to Political Analysis 4 s.h.
Conceptual problems of political analysis; empirical research strategies, philosophy of science. Prerequisite: doctoral standing in political science or consent of instructor.

030:201 Introductory Methodology 3-4 s.h.
Observational methods, data analysis, critical analysis of applied social research; laboratory on computing in political science. Prerequisite: doctoral standing in political science or consent of instructor.

030:204 Computational Methods 3 s.h.
Methods for political analysis; calculus, matrix algebra, set theory. Prerequisite: doctoral standing in political science or consent of instructor.

030:205 Introduction to Formal Models in Political Science 4 s.h.
Use of formal mathematical models; current modeling techniques, applications in American politics, comparative politics, international politics. Prerequisite: doctoral standing in political science or consent of instructor.

030:210 American Politics 4 s.h.
Major literature of American politics, emphasis on comparative, systemic, behavioral studies. Prerequisite: doctoral standing in political science or consent of instructor.

030:230 Political Theory 4 s.h.
Methods of political theory, epistemological and moral foundations of political inquiry; terms of political discourse (e.g., power, legitimacy, ideology), foundational questions of politics; school of thought and current controversies in political theory. Prerequisite: doctoral standing in political science or consent of instructor.

030:240 Comparative Politics 4 s.h.
Current approaches analysis of systems; emphasis on conceptual, methodological issues. Prerequisite: doctoral standing in political science or consent of instructor.

030:241 Crossing Borders Seminar: Introductory 3-4 s.h.

030:242 Crossing Borders Seminar 3-4 s.h.

030:243 Crossing Borders Pre-seminar 1 s.h.

030:260 International Politics 4 s.h.
Approaches to study of international politics. Prerequisite: doctoral standing in political science or consent of instructor.

030:301 Intermediate Methodology 3-4 s.h.
Techniques of data analysis; statistical models and their relationship to hypotheses tested. Prerequisites: doctoral standing in political science and one semester of intermediate statistics.

030:302 Writing Political Science 4 s.h.
Practice in planning and completing political inquiries, with emphasis on writing for scholarly publication; experience refining one's prior research projects for submission to student journals, and drafting dissertation proposals. Prerequisite: doctoral standing in political science or consent of instructor.

030:304 Experimental Methods 4 s.h.
Methods, techniques used in political science experiments.

030:305 Topics in Methodology 4 s.h.
Application of advanced statistical techniques in political science, limited dependent variable regression techniques, simulation methods, missing data techniques, history/trend analysis and mapping, techniques in content analysis; focus on learning how and when to apply these techniques. Repeatable.

030:306 Qualitative Research Methods 4 s.h.
Formal literature on qualitative research methodology; varied methods including synchronic and diachronic variate comparative methodology, classical Weberian sociological methodology, process tracing, historiography, ethnomet hodology and ethnography, genealogy, discursive textual and content analysis.

030:310 Modeling American Politics 4 s.h.
Exploration of how well formal models explain the real world and how the fit between models and world can be improved.

030:311 Representation and Elections 4 s.h.
Current research on political representation in a democratic policy; what constitutes democracy and representation, America's political system quality; how party and electoral systems interact with policy-making institutions regarding society's varied interests; principal problems and obstacles to full representation in America, including circumstances of American minorities, divided government, organized interest groups.

030:315 The Presidency 4 s.h.
American chief executive: history, recruitment, behavior, rules, responsibilities, powers, relationships with other institutions.

030:317Minority Politics in America 4 s.h.
Minority status in American politics; historic and contemporary struggles of American minority groups for political power; social acceptance; nature of bias and stereotype, their effects on political behavior; current political dilemmas and strategic situations of African Americans, Latinos, homosexuals, political behavior; policy issues important to each group, disputes within minority groups.

030:319 Problems in American Politics 4 s.h.
Problems in study of American political system, problems of concepts, evaluation, propensity in preference and analysis.

030:338 Colloquium in Political Theory 1-4 s.h.
Issues and works; no subject repetition in six consecutive semesters. Repeatable.

030:339 Problems in Political Theory 1-4 s.h.
Prescriptive and explanatory political theory. Repeatable.

030:340 Politics of Europe 1-4 s.h.
Selected systems or common political phenomena.
030:341 Democracy and Democratization 4 s.h.
Comparing conceptualizations of democratic governance and comparing theoretical frameworks for the study of successful or attempted regime change from authoritarian rule towards democracy; emphasis on reading and critically analyzing diverse approaches.

030:342 Nationalism: Theory and Practice 4 s.h.
Theories of nationalism and nature of ethnicity; national identities in modern society; nationalism, rise and fall of nation states; constitutional mechanisms for reducing ethnic-based political and violent conflict.

030:343 Asian Political Systems 4 s.h.
Democratic, transitional, and totalitarian types of government; emphasis on leadership recruitment, social control, political participation.

030:347 Civil Society, NGOs, and Social Capital 4 s.h.
Role of associational life in politics; role of citizens’ organizations in enhancing or undermining democratic governance or changing authoritarian systems; usefulness of concepts such as civil society and social capital, how such concepts work in varied cultural and institutional contexts, how nongovernmental and nonprofit organizations reshape domestic and international politics; main currents and contributions, avenues for future research.

030:349 Problems of Comparative Politics 4 s.h.
Problems in study of comparative political systems, structures, functions, behavior.

030:350 Political Economy and Public Policy in Developing Countries 4 s.h.
Relationships between political, economic, social change in developing countries, their bearing on formulation of development policy, basis on significance of social theory for resolving dilemmas posed by alternative development strategies.

030:352 Legislative Behavior 4 s.h.
Institutions, processes, behavior in the United States, Europe, or developing countries.

030:353 Political Psychology 4 s.h.
Political phenomena from a psychological perspective; decision-making by elites and masses, evaluation of political candidates, mass mobilization, response to mass media; psychological theories used to explain these phenomena, including stereotyping, social cognition, attitude, group identification, attribution.

030:357 Public Opinion and Electoral Behavior 4 s.h.
Political attitudes and beliefs in mass publics; voting behavior; how electoral systems function.

030:360 Theories of International Politics 4 s.h.
Survey; theoretical frameworks, including realism, structural realism, neo-liberal Institutionalism, constructivism, Gramscian Marxism; frameworks applied to security studies, international political economy, international organization and sub-systems; emerging critical theoretical perspectives, including post-structuralism, post-positivism, feminism, critical approaches to international politics.

030:361 Foreign Policy 4 s.h.
Foreign policy making and international behavior in relation to theories, findings from selected countries.

030:362 International Conflict and Cooperation 4 s.h.
Recent theoretical and empirical debates in international relations literature; emphasis on causal and correlative research.

030:363 Dynamic Models of International Politics 4 s.h.
Overview of several dynamic modeling techniques used to study international relations; modeling assumptions, the kinds of information models can provide, evaluation of models.

030:367 Theories of International Political Economy 4 s.h.
Theories focusing on international system, the state, bureaucracies, interest groups, international organizations, bargaining processes, domestic norms.

030:368 International Systems and Global Governance 4 s.h.
Literature of international systems and international organization; major schools of thought in international relations theory; their utility in explaining evolution of the international system and recent developments in international organization and global governance.

030:369 Problems in International Politics 4 s.h.
Issues of international politics; emphasis on problems of theoretical analysis. Repeatable.

030:390 Readings Tutorial 4 s.h.
Independent study. Repeatable. Prerequisite: consent of supervising faculty member.

030:393 Research Tutorial 4 s.h.
Individual research in applied research. Repeatable. Prerequisite: consent of supervising faculty member.

Repeatable. Prerequisite: consent of supervising faculty member.

Chair: Gregg C. Oden

Professors: Robert S. Baron, Peter D. Blanck

LAW/PSYCHOLOGY, Mark S. Bumberg, Alan J. Christensen (Psychology/Internal Medicine), Lee Anna Clark, Antoniu R. Danescu (Neurology/Neurology), Steven W. Duck (Communication Studies/Pharmacology), Don C. Fowlkes, Gary J. Gaeth (Marketing/PSYCHOLOGY), John H. Harvey, A. Kim Johnson (F. Wendell Miller Professor), John F. Knutson, Grazyna Kuchanska (Stuit Professor of Developmental Psychology), Irwin P. Levin (Psychology/Marketing), Lola L. Lopes (Management and Organizations/PSYCHOLOGY), Steven J. Luck, Peter E. Nathan (UI Foundation Distinguished Professor/PSYCHOLOGY/Community and Behavioral Health), Lisa M. Oakes, Gregg C. Oden (Psychology/Computer Science), Michael W. O’Hara, Jane S. Paulsen (Psychiatry/PSYCHOLOGY), Jodie M. Piument, Jerry M. Suls, Daniel T. Tranell (Neurology/PSYCHOLOGY), Edward A. Waseeman (Stuit Professor of Experimental Psychology), David B. Wason


Professor (clinical): James N. Marchman

Adjunct professor: Lor J. Nelson

Associate professors: Erling A. Anderson (Anesthesiology/PSYCHOLOGY), John H. Freeman, Susan K. Lutgendorf, Scott R. Robinson, John P. Spencer, Scott P. Stuart (Psychiatry/PSYCHOLOGY), Shaun P. Vecera, Paul D. Windschrid

Associate professors emeriti: Dee W. Norton, Sue R. Rothen

Adjunct associate professors: Robert F. Kirby, Richard J. Roberts

Assistant professors: Prahlad Gupta, Andrew R. Hollingsworth, Eva C. Kohmen, Erik Lawrence, Rene E. Martin (Nursing/PSYCHOLOGY), Amy Poremba, Latiuka K. Samuelson

Adjunct assistant professors: Gregory L. Gullickson, Debra L. Johnson, Ola F. Lazerova, Maureen Marron, Mollie W. Mart, Bradley D. McDowell, Joshua S. Rodefer, Lisa S. Segre, Ruth A. Spinks, Robert L. Thurnheir

Undergraduate degrees: B.A., B.S. in Psychology

Undergraduate nondegree program: minor in Psychology

Graduate degrees: M.A., Ph.D. in Psychology

Web site: http://www-psychology.uiowa.edu

Undergraduate Programs

The department offers the Bachelor of Arts and the Bachelor of Science in Psychology. Both programs are designed to contribute to students’ general liberal education and to provide a foundation for postbaccalaureate training in psychology and closely related disciplines, and in areas such as business, medicine, law, and communications. Students who intend to enter the job market immediately after completing an undergraduate degree are well-advised to complement their psychology major with substantial preparation in another program more closely tied to the world of work (e.g., education, social work, business, journalism, nursing). Almost all vocational opportunities in psychology require advanced degrees.

The B.S. program is intended for students who plan to pursue advanced work in psychology or in a related discipline. It includes an admission grade-point average requirement and specific courses in statistics, experimental psychology, mathematics, and natural science. The B.A. program has fewer specific requirements and puts less emphasis on methodology. Both programs leave ample time for students to combine psychology with another discipline or program.

Students who wish to a psychology major after two years of undergraduate work may find they do not have the background for the B.S. program. They may wish to enrich the B.A. program with courses in experimental psychology and other advanced electives if they intend to pursue graduate work in psychology or a related field.

Students in either program begin with a general introductory course, followed by statistics and methodology courses and introductory courses in several broad areas: behavioral and cognitive neuroscience, developmental psychology, clinical psychology, cognition and perception, and personality and social psychology. These courses are followed by upper-level psychology course work selected by the student.

The department maintains excellent facilities to support teaching and research on human and animal behavior. All faculty members are directly engaged in research, and they bring to their undergraduate teaching the excitement that such activity generates. Many opportunities exist for interested and capable students to participate in current research projects in the department.

The department has an active undergraduate organization, the Iowa Student Psychology Association, which is open to all interested students. The group sponsors speakers, films, career days, and student symposia.

Undergraduate psychology students may use Saturday & Evening Classes and/or Guided Independent Study to meet B.A. and B.S. program requirements.

Selective Admission

Admission to the B.A. program in psychology is open; admission to the B.S. program is restricted. To be eligible for admission to the B.S. program, students must have completed 30 s.h. of college course work (excluding any credit by exam) and must have a cumulative g.p.a. of 2.67 or higher. There is no limit on the number of qualified students admitted to the B.S. program. Students who do not meet the minimum admission requirements may petition the department in writing, presenting any additional evidence of their qualifications.

Any University student may enter the B.A. program. Entering first-year and transfer students with fewer than 30 s.h. of course work who are interested in the B.S. program are admitted to the B.A. program until they satisfy the admission requirements for the B.S. program. New transfer students who meet the admission requirements for the B.S. program may choose to enter the B.S. or the B.A. program. Any student in the B.A. program may switch to the B.S. program if he or she meets admission requirements at the time of the request. Students may switch from the B.S. to the B.A. program at any time.
Bachelor of Arts

The B.A. program is designed for students who wish to gain considerable knowledge in psychology but do not necessarily plan a professional career in the discipline. The program is appropriate for students preparing for careers in law, business, counseling, social work, or secondary school teaching (see the College of Education section of the Catalog for social science teaching certification requirements). The B.A. program requires fewer psychology courses than the B.S. program and can more easily be combined with a second major.

Students interested in pursuing graduate study in psychology or other social sciences may wish to enrich their B.A. program by taking courses in mathematics, statistics, research methods, and the natural sciences.

Students must satisfy College of Liberal Arts and Sciences requirements for the B.A. and must complete at least 28 s.h. in psychology plus an approved 3 s.h. statistics course. Students also must complete at least 9 s.h. of course work at The University of Iowa in a second area of concentration. Courses used to complete the College of Liberal Arts and Sciences General Education Program may not be used to satisfy the second area of concentration, but a second major or a minor in any discipline will satisfy the requirement.

Transfer students must complete at least 15 s.h. of the major at The University of Iowa.

The B.A. program must include the following courses or their equivalents.

PSYCHOLOGY CORE REQUIREMENTS

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>07P:025</td>
<td>Elementary Statistics and Inference</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>031:001</td>
<td>Elementary Psychology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>One of these:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>031:043</td>
<td>Evaluating Psychological Research</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>031:120</td>
<td>Experimental Psychology I</td>
<td>7 s.h.</td>
</tr>
</tbody>
</table>

LOWER-LEVEL ELECTIVES

Students take four of the following after completing 031:001 (total of 12 s.h.).

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>031:012</td>
<td>Introduction to Brain and Behavior</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>031:013</td>
<td>Introduction to Clinical Psychology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>031:014</td>
<td>Introduction to Child Development</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>031:015</td>
<td>Introduction to Social Psychology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>031:016</td>
<td>Introduction to Cognitive Psychology</td>
<td>3 s.h.</td>
</tr>
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</table>

UPPER-LEVEL ELECTIVES

Students take three upper-level courses after satisfactorily completing the psychology core courses and other specified prerequisites (total of 9 s.h.). Prerequisites are stated in course descriptions; see “Courses” later in this section.

A list of approved upper-level courses and their prerequisites is available from the department and on the department's web site. Courses offered vary from semester to semester. Before each registration period, students should check the latest version of the brochure Undergraduate Psychology at Iowa, available from the department and at the department's web site, and on Iowa Student Information Services (ISIS).

Bachelor of Science

The B.S. program is designed to be more rigorous than the B.A. Accordingly, the B.S. may be the degree of choice for students who plan to do graduate work in psychology and related research fields. However, choice of a degree program should be dictated by the student’s personal career goals, and a B.S. is not required for graduate study in psychology.

Students must satisfy the College of Liberal Arts and Sciences requirements for the B.S. and must complete at least 34 s.h. in psychology. Transfer students must complete at least 15 s.h. of the major at The University of Iowa.

The B.S. program must include the following courses or their equivalents.

PSYCHOLOGY CORE REQUIREMENTS

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<tr>
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<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>07P:143</td>
<td>Introduction to Statistical Methods (or an approved substitute, such as 22S:101 Biostatistics)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>031:001</td>
<td>Elementary Psychology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>031:120</td>
<td>Experimental Psychology I</td>
<td>3 s.h.</td>
</tr>
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SELECTED TOPICS COURSES

Students take both of these.

- 031:121 Experimental Psychology II 4 s.h.
- 031:190 Psychology Seminar 3 s.h.

ADDITIONAL REQUIRED COURSES

Candidates for the B.S. in psychology also are required to complete one of the following pairs of specified natural science courses: one semester each of chemistry and biological sciences; two semesters of chemistry; two semesters of physics; or one semester each of chemistry and physics. All of these combinations can be used to complete the General Education Program natural sciences component. B.S. majors also must complete at least one semester of calculus; in most cases this entails at least one precalculus mathematics course. Students should consult with their advisers concerning specific courses that will satisfy these requirements.

Students also must complete at least one additional course in advanced mathematics, statistics, or computer science chosen from the following lists.

Mathematics

- 22M:022 Calculus and Modeling II 4 s.h.
- 22M:026 Calculus II 4 s.h.
- 22M:027 Introduction to Linear Algebra 4 s.h.
- 22M:032 Engineering Mathematics II: Multi-Variable Calculus 4 s.h.

Statistics

- 06E:071 Statistics for Strategy Problems 3 s.h.
- 22S:120 Probability and Statistics 4 s.h.
- 22S:148 Intermediate Statistical Methods 3 s.h.

Computer Science

- 06K:070 Computer Analysis 3 s.h.
- 22C:005 Introduction to Computer Science 3 s.h.
- 22C:016 Computer Science I 4 s.h.

Four-Year Graduation Plan

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

Bachelor of Arts

In addition to courses in the major, the B.A. requires three courses in a second area.

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

Before the fifth semester begins: 031:001, 3 s.h., and at least one-half of the semester hours required for graduation

Before the seventh semester begins: four courses in the major (including 031:043 or 031:120), one second-area course, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: two additional courses in the major and an additional second-area course

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

Note: The B.S. is open only to students who have earned 30 s.h. in course work and have a g.p.a. of at least 2.67. Students must complete a natural science sequence, either as part of the General Education Program or in addition to it. Students also must complete a semester of calculus and an advanced math, statistics, or computer course, which may require some preliminary work.

Before the third semester begins: 031:001 and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: calculus, statistics, three additional courses in the major (including 031:120), and at least one-half of the semester hours required for graduation

Before the seventh semester begins: two more courses in the major, one course for the psychology natural science requirement, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: the advanced math/statistics/computer course and two more courses in the major

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

Graduate Program

The graduate program in psychology is designed for students seeking the Ph.D. Students enrolled in the Ph.D. program may elect to receive a Master of Arts when they have completed the M.A. requirements. Students entering without previous graduate work usually require at least four years to complete the program; those entering with previous graduate training usually require three to five additional years in the department, depending on the nature of the earlier preparation.

The Ph.D. program places strong emphasis on preparation for research, teaching, and scholarly endeavor, whether in academic settings or in industrial, governmental, or medical institutions. The intent is to produce graduates who are deeply committed to the study of psychology, familiar with fundamental knowledge about psychological processes, well-trained in the methods and techniques for careful investigation of basic and applied problems, and determined to make contributions to the discipline of psychology and to society.

Graduate training is organized in six broad areas: behavioral and cognitive neuroscience, clinical psychology, cognition and perception, developmental psychology, health psychology, and personality and social psychology. Each entering student is expected to identify one of these as his or her primary area and to follow a program that develops thorough understanding of the substantive material and methods of investigation central to that subdiscipline. While pursuing specialty training, all students must meet course requirements in statistics and research methods and in content areas other than their primary one.

The training area programs are sufficiently flexible to permit students to develop substantial competence in a second training area. Individually tailored programs are possible.

Doctor of Philosophy

The Ph.D. requires satisfactory completion of at least 72 s.h. of graduate work in psychology, including at least 33 s.h. in the psychology department. All students must satisfy, through one of several options, requirements in statistics and research methods. They also must complete course work outside the primary training area to develop a background in the discipline of psychology as a whole.

During each of the first two semesters, graduate students ordinarily take three courses—for example, a statistics course, a course or two in the primary training area, and/or an outside area elective. Students also begin their research under the supervision of the adviser and with the guidance of their research advisory committee.

Near the end of the fall semester of the second year, students submit a report describing their research to date. At the beginning of the following semester, they present their research at the annual graduate research symposium.

During subsequent years, students continue selected course work in their training and interest areas and continue to develop their research programs. In addition, they develop a

Master of Arts With Thesis

As indicated previously, the department does not ordinarily offer the Master of Arts except to students enrolled in the Ph.D. program. The M.A. with thesis requires satisfactory completion of at least 30 s.h. of graduate credit, including 24 s.h. taken at The University of Iowa. The course work must include a statistics course and courses outside the primary specialty area and at least an additional 8 s.h. earned in courses and seminars in the department. Students also must complete an acceptable scholarly thesis and conduct a successful oral defense of the thesis.

Master of Arts Without Thesis

The M.A. without thesis requires satisfactory completion of at least 37 s.h. of graduate credit, including 30 s.h. taken at The University of Iowa. The course work must include a statistics course and courses outside the primary area and at least an additional 15 s.h. earned in courses and seminars in the department. Students also must perform successfully on a written examination covering their area of specialization.

Graduate Training Areas

Behavioral and Cognitive Neuroscience

The program in behavioral and cognitive neuroscience focuses on the analysis of attention, motivation, and learning, primarily in nonhuman subjects, through the application of behavioral and biological principles. Special faculty strengths are in classical and operant conditioning, motivation and emotion, developmental psychobiology, neurobiology of learning, comparative psychology, cognitive neuroscience, neuropsycharmacology, neuroendocrinology, and neuroanatomy. Students in this program have the opportunity to learn state-of-the-art techniques in computer-controlled experimentation and electronic instrumentation as well as advanced analytic and laboratory methods in neurosurgery, histology, and biochemical assay.

Faculty members in the behavioral and cognitive neuroscience area interact extensively with colleagues from a number of basic science and clinical departments in the Carver College of Medicine, including anatomy, anesthesia, pharmacology, internal medicine, pediatrics, and neurology. These collaborative activities provide excellent research and training opportunities for students interested in emerging interdisciplinary fields such as behavioral medicine.

Honors

In order to pursue honors studies in the Psychology Department, a student must be a member of the University Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information).

The department has an active honors program that includes research seminars and individual research collaboration with faculty members. Interested majors should contact the department honors adviser.

National Honor Society

The department sponsors a chapter of Psi Chi, the national undergraduate honor society of the American Psychological Association. Students who have a g.p.a. of at least 3.00 overall and 3.10 in psychology course work and who have completed 9 s.h. of psychology may request a membership application form. Consult the department’s academic coordinator for more information.

Minor

A minor in psychology is an attractive option to students from a variety of disciplines. A minor requires 15 s.h. of graded course work with a g.p.a. of at least 2.00. At least 12 of the 15 s.h. must be earned in the psychology department at The University of Iowa. Departmental advisers can help students identify courses for a minor that complement the student’s major. Prerequisites must be met when students enroll in psychology courses.

Minor in Psychology

A minor in psychology is an attractive option to students from a variety of disciplines. A minor requires 15 s.h. of graded course work with a g.p.a. of at least 2.00. At least 12 of the 15 s.h. must be earned in the psychology department at The University of Iowa. Departmental advisers can help students identify courses for a minor that complement the student’s major. Prerequisites must be met when students enroll in psychology courses.
Clinical Psychology

The clinical training program, fully approved by the American Psychological Association, strongly emphasizes a scientific approach to the study of mental and physical health. It is designed for students who are interested primarily in developing scholarly understanding of clinical phenomena and acquiring research skills necessary to the systematic investigation of such phenomena. Recognizing that students must become familiar with clinical material and competent in the application of clinical skills, the department closely integrates practicum experience in the Carl E. Seashore Psychology Clinic with course work and supervised research experience.

Students in the clinical program may develop special competence in areas such as aggression, personality and personality disorders, psychophysiology, anxiety disorders, affective disorders, behavioral and cognitive therapies, child psychopathology, and clinical health psychology. Faculty members collaborate actively with colleagues from departments such as otolaryngology, psychiatry, pediatrics, obstetrics and gynecology, internal medicine, microbiology, neurology, and surgery, and from other units, such as the Center for Health Services Research and the Veterans’ Affairs Medical Center. Partly as a consequence of such collaboration, there are several topics in health psychology in which clinical faculty members are prepared to offer research supervision.

Advanced students have opportunities to gain additional practicum experience through placement in clinical facilities maintained by local, state, federal, and University agencies. Students in the clinical program who wish to have the designation “clinical psychology” on their official transcript must satisfactorily complete a one-year internship at an approved agency before receiving the doctoral degree. The internship ordinarily comes after completion of all course work and most, if not all, of the dissertation project.

For information about the clinical psychology program’s accreditation, contact the Office of Program Consultation and Accreditation, American Psychological Association.

Cognition and Perception

The cognition and perception training area is guided by the philosophy that understanding a specific cognitive process requires understanding how it interacts with other cognitive processes (e.g., interactions between attention and memory). The area pursues empirical rigor and theoretical development, so its research is theory driven and data tested.

Research programs of the area’s laboratories overlap with each other, and most content areas are studied by multiple laboratories and with multiple methodologies. Areas of strength include categorization, computational modeling, judgment and decision making, language and language learning, learning and memory, visual cognition, attention, and working memory.

Students in perception and cognition take basic courses and seminars in specialty areas, but they devote most of their time to research activities. Students work closely with a faculty mentor at first and then become progressively independent as they gain knowledge and skills. The program encourages students to work with more than one faculty member, both in the program and across the department and the University. Students often combine basic work on cognition with work in areas such as neuroscience, psychiatry, marketing, law, social psychology, and human factors engineering.

Developmental Psychology

Students in the developmental program are taught a broad range of developmental theory, and they acquire expertise in multiple research paradigms used in developmental psychology, such as observational research, experimentation, and field methods. Students also have the opportunity to study and collaborate with faculty members who are not primarily developmental psychologists but whose work has implications for developmental theory. This opportunity provides a unique breadth of training.

Students take courses in many areas of developmental psychology as well as in other areas of psychology. Currently available to students are research opportunities in cognitive development in infancy and childhood, social and emotional development, and developmental psychobiology. The developmental research group, composed of faculty members and students interested in issues related to developmental research, meets regularly to discuss ongoing research. These meetings provide both students and faculty members the opportunity to present and discuss their own research as well as to gain exposure to other developmental work being conducted in the department.

Health Psychology

The health psychology program is concerned with application of psychological theory, methods, and treatment to understanding and promotion of physical health and illness. The program’s perspective is based on the biopsychosocial model, which posits that biological, psychological, and social processes are integrally and interactively involved in physical health and illness.

Graduate training in health psychology emphasizes the integration of knowledge about biological, psychological, and social factors. Students are involved in research whose content and methods reflect the biopsychosocial perspective. Training in health psychology is facilitated by the faculty’s longstanding collaborations with medical practitioners and researchers at the UI Carver College of Medicine and University of Iowa Hospital and Clinics. Availability of medical populations and state-of-the-art medical technologies afford a unique opportunity for doctoral students in health psychology.

Research areas of the health psychology program include stress and illness, psychoneuroimmunology, patient adherence, animal models of hypertension and heart failure, postpartum depression, women’s health issues, and psycho-oncology.

Personality and Social Psychology

The personality and social psychology program offers a variety of perspectives on interpersonal and intrapersonal processes. Students develop a broad familiarity with all of the major subareas but may focus their graduate training in any one, such as social judgment, social influences on behavior, close relationships, adult attachment styles, health and stress, the social psychology of groups, social cognition, temperament and emotionality, and traits and individual differences.

Students in the personality and social psychology program also may acquire additional preparation for research and teaching in interest areas such as organizational and consumer behavior, communications, human factors, and behavioral medicine. Such preparation, which may involve participation in special research projects and selected course work outside the department (e.g., in the Department of Communication Studies or the College of Law), will broaden students’ employment prospects.

Admission

Since the graduate program in psychology is designed primarily for students seeking the Ph.D. degree, all applicants are considered on this basis. Occasionally, a qualified applicant who is in good standing in another UI graduate program and is interested in advanced work in psychology only through the M.A. level may be admitted to pursue a joint graduate program. Students interested in such a program should contact the department chair before filing an application.

The deadline for applications is January 1. For all materials to be on file by that date, the Graduate Record Examination (GRE) General Test should be taken in October, certainly no later than in December. The subject test in psychology is not required. Applications may be submitted at any time but are considered only once each year—between January 1 and February 1—for admission the following fall. Admission decisions are based on a composite consideration of prior academic and research performance, letters of reference, scores on the verbal, quantitative, and analytic sections of the GRE General Test, and the applicant’s statement about background and purpose. Admission materials are initially reviewed by faculty members in the applicant’s primary training area.

An undergraduate major in psychology—including a laboratory course in experimental psychology, a course in statistics, and additional work in the natural sciences and in mathematics—is desirable but not required. Students who have not had such a background but are strongly qualified on other grounds may be admitted. They are expected to remedy deficiencies through special course work or independent study prior to embarking on the regular graduate program.

Financial Support

All students admitted to the Ph.D. program in psychology are guaranteed five years of financial support, as long as they make satisfactory progress and remain in good academic standing. Financial support is provided through
fellowships, teaching assistantships, research assistantships, and traineeships, depending on merit and availability. No separate application for financial aid is required.

Faculty

Faculty members of the Department of Psychology are nationally and internationally renowned leaders in a variety of subdisciplines. Their research is funded by numerous federal and private research grants, their findings are documented in many publications, and their accomplishments have won many awards.

Facilities

The department's facilities for graduate training and research are among the finest in the country. The Kenneth W. Spence Laboratories of Psychology and adjoining space in Seashore Hall include a variety of laboratories for human and animal studies. Facilities include animal housing areas; a histology laboratory; observation suites with remote audiovisual control and recording equipment; soundproof chambers; electrophysiological recording rooms; conditioning laboratories; the Carl E. Seashore Psychology Clinic; and well-equipped electronic, mechanical, and woodworking shops.

Microcomputers of many kinds are widely available. Office space for graduate students and faculty is provided in Seashore Hall. The psychology branch of the University's Main Library, with major collections in all areas, is conveniently located in the west wing of Seashore Hall.

The research and teaching activities of the department greatly benefit from the facilities and staff of other University and local agencies, including The University of Iowa Hospitals and Clinics, the Psychiatric Hospital, the Veterans Affairs Medical Center, the University Counseling Service, the Child Development Clinic, the Wendell Johnson Speech and Hearing Clinic, the Center for Health Services Research, and the School of Social Work.

Courses

Primarily for Undergraduates

Courses 031:012, 031:013, 031:014, 031:015, 031:016, and 031:019 are open to first-year students who have satisfactorily completed an introductory psychology course (031:001 or equivalent).

031:001 Elementary Psychology

Psychology as a behavioral science. GE: social sciences.

031:012 Introduction to Brain and Behavior

Biological mechanisms of behavior; comparative study of behavior in animals, including humans), behavioral organization, animal intelligence, social behavior, communication; behavioral neuroscience, how brain systems control sensation, movement, homestasis, emotion, learning. Prerequisite: 031:001.

031:013 Introduction to Clinical Psychology

Introduction to clinical psychology; scientific practitioner model, training, ethics, research methods in clinical psychology; current approaches to intellectual, personality, behavioral assessment; theories, research on treatment of psychological disorders. GE: social sciences. Prerequisite: 031:001.

031:014 Introduction to Child Development

Current research on child psychology, including heredity and environment, infancy, perceptual development, attachment, language acquisition, thinking (Piaget), information processing, memory and concept development, intelligence, child rearing, peers, sex differences, moral development, aggression, child psychopathology. GE: social sciences. Prerequisite: 031:001.

031:015 Introduction to Social Psychology

Research and theories on people's thoughts, feelings, and behavior in social situations; attitudes, attraction, cooperation, competition, social judgment, attitudes, social influence, group processes, altruism. Prerequisite: 031:001.

031:016 Introduction to Cognitive Psychology

Individual human perception; attention, memory, language, learning, problem solving, decision making, thought considered from viewpoint of information processing. GE: social sciences. Prerequisite: 031:001.

031:019 Industrial/Organizational Psychology

Application of psychology to problems in work at work; emphasis on personnel selection, training, attitudes, motivation, measurement of job performance. Prerequisite: 031:001.

032:09W First-Year Seminar

Small discussion seminars with a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first-year students.

031:043 Evaluating Psychological Research

Skills for critical evaluation of professional and public literature dealing with scientific study of behavior: philosophy of scientific psychology, experimental and nonexperimental methods of investigation, principles of experimental design and control, statistical techniques, presentation and discussion of applications in several areas of research. Prerequisite: 031:001 and an approved statistics course.

031:050 Psychology of Aging

The later years of human life viewed from perspectives of developmental psychology, biology, sociology. Prerequisite: 031:001 or 031:120, same as 151-120.

031:063 Abnormal Psychology: Health Professions

Psychiatric disorders; description of psychopathology (e.g., anxiety, depression, substance abuse, antisocial behavior), and general issues in etiology, processes underlying psychopathology, treatment. Prerequisites: nonpsychology major and 031:001 or equivalent.

For Undergraduate and Graduate Students

Before enrolling in any upper-level undergraduate courses, students must complete all specified lower-level prerequisites or obtain consent of instructor.

031:012 Interpersonal Influence

Classic and contemporary theory and research on social influences of behavior; topics include social influences on self-concept, interpersonal comparisons, obedience, conformity. Prerequisites: grade of C- or higher in 031:013 or 031:015 or 031:120 or equivalent.

031:103 Social and Personality Development

Emotional, social, and personality development from infancy to adolescence; child's temperament characteristics, parent-child relationship, and socialization as contributors to growth. Prerequisites: grade of C- or higher in 031:014 or 031:120 or equivalent, and 031:043 or 031:120 or equivalent.

031:105 Personality

Classic theoretical models and contemporary empirical research in personality, including influence of heredity and environment, consistency and stability of behavior. Prerequisites: grade of C- or higher in 031:013 or 031:120 or equivalent, and 031:103 or 031:120 or equivalent.

031:106 Attitude Change

Current theoretical approaches; laboratory and field methods of research; basic processes of change considered within broader framework of psychological theories. Prerequisites: grade of C- or higher in 031:105 or 031:103 or equivalent, and 031:043 or 031:120 or equivalent.

031:107 Environmental Stress

Social psychological aspects of urban living, crowding, control, institutionalization, energy utilization, theory and research on stress, arousal, emotion. Prerequisites: grade of C- or higher in 031:105 or equivalent, and 031:043 or 031:120 or equivalent.

031:108 Small Group Processes

Classic work on conformity, reference groups, cohesion, contagion, group performance, responsibility diffusion, decision making, group conflict; focus on laboratory experiments, field studies and observations, relevant theory. Prerequisites: grade of C- or higher in 031:015, and 031:043 or 031:120 or equivalent.

031:110 Mood and Temperament

Current theoretical approaches and contemporary empirical research in emotions, emotional expression, interpersonal and biological influences on mood, including cyclical, weekly, seasonal cycles; individual differences in temperament, happiness, life satisfaction. Prerequisites: grade of C- or higher in 031:013 or equivalent, and 031:043 or 031:120 or equivalent.

031:111 Social Cognition

Research and theory on cognitive structures and processes that underlie judgment, decision, belief, and behavior in social situations; attribution, heuristics, schemas, person perception, stereotypes, attitudes. Prerequisites: grade of C- or higher in 031:015 or equivalent, and 031:043 or 031:120 or equivalent.

031:114 Cognitive Development of Children

Developmental research, theory concerning children's concepts, thinking, problem solving, memory, communication. Prerequisites: grade of C- or higher in 031:014 or equivalent, and 031:043 or 031:120 or equivalent.

031:115 Theories of Developmental Psychology

Major theoretical approaches to the study of human development (e.g., social learning, information processing, ethological, contextual), related topics such as perceptual development and attachment. Prerequisites: grade of C- or higher in 031:014 or equivalent, and 031:043 or 031:120 or equivalent.

031:116 Psychology of Gender

Origins of gender roles, gender socialization in childhood, gender differences across lifespan; research on gender differences in cognition, emotions, behavior; physical and mental disorders, communication. Prerequisite: grade of C- or higher in 031:043 or 031:120 or equivalent.

031:117 Psychology of Prenatal Development

Behavior before and immediately after birth: umbilical cord and development of fetus, preterm infant, and neonate; motor development, sensation, learning, adaptation to intrauterine conditions. Prerequisites: grade of C- or higher in 031:014 or equivalent, and 031:043 or 031:120 or equivalent.

031:118 Infant Development

Cognitive and social development during first two years of life; development of perceptual abilities, early language acquisition, imitation, mother-infant attachment, temperament. Prerequisites: grade of C- or higher in 031:014 or equivalent, and 031:043 or 031:120 or equivalent.

031:120 Experimental Psychology I

Logic and application of experimental methods to analysis of behavioral phenomena; major problem areas of experimental psychology. Prerequisites: 031:001, and 079:143 or 225:102 or equivalent.

031:121 Experimental Psychology II

Laboratory study of an aspect of behavior, topics in a particular area (e.g., learning and memory, perception, social behavior, operant behavior, physiological processes). Prerequisite: grade of C- or higher in 031:120 or equivalent; additional prerequisites for some sections.

031:122 Language Development

Introduction to first language acquisition, with focus on infancy through five years; sound discrimination abilities, word learning, babbling and speech production, acquisition of grammar; perspectives from psychology, audiology, linguistics, speech pathology. Prerequisites: grade of C- or higher in 031:016 or equivalent, and 031:043 or 031:120 or equivalent.

031:123 Psychology of Learning

Psychological science of acquired behavior; interests in experimental study of Pavlovian conditioning, operant conditioning, cognition in humans and nonhuman animals, relevance to behavioral adaptation. Prerequisites: grade of C- or higher in 031:016 or equivalent, and 031:043 or 031:120 or equivalent.

031:125 Comparative Psychology

Behavioral processes in humans, animals; intelligence, memory, attention, language, consciousness, behavior, ontogeny, evolution, neuropsychology. Prerequisites: grade of C- or higher in 031:012 or equivalent, and 031:043 or 031:120 or equivalent.

031:126 Behavioral Neurosciences

Basic concepts and techniques in neurosciences, their application to analysis of sensory processes, arousal mechanisms, motivation, learning. Prerequisites: grade of C- or higher in 031:012 or equivalent, and 031:043 or 031:120 or equivalent.
031:128 Psychopharmacology 3 s.h.
How drugs act to influence behavior; general principles of drug action on the nervous system, illicit and illicit drugs, their use/abuse, historical perspective on drug use. Prerequisites: grade of C or higher in 031:012 or equivalent, and 031:043 or 031:120 or equivalent.

031:129 Neurobiology of Learning and Memory 3 s.h.
Major topics in the neurobiology of learning and memory, focus on anatomical, cellular, molecular bases of various learning and memory processes. Prerequisites: grade of C or higher in 031:012 or equivalent, and 031:043 or 031:120 or equivalent.

031:130 Psychology of Thinking 3 s.h.
Problem solving, reasoning, judgment and decision making, language and thought, intelligence, creativity. Prerequisites: grade of C or higher in 031:016 or equivalent, and 031:043 or 031:120 or equivalent.

031:131 Cognitive Science 3 s.h.
Introduction to cognitive science, an interdisciplinary enterprise that investigates psychological processes using perspectives from psychology, computer science, linguistics, philosophy, neuroscience. Prerequisites: grade of C or higher in 031:016 or equivalent, and 031:043 or 031:120 or equivalent.

031:133 Sensation and Perception 3 s.h.
Psychological and neurophysiological examination of humans' major sensory systems, especially vision, language, and memory. Prerequisites: grade of C or higher in 031:012 or equivalent, and 031:043 or 031:120 or equivalent.

031:134 Cognition and the Brain 3 s.h.
Analysis of the brain as a biological computational system that performs cognitive tasks such as vision, language, and memory. Prerequisites: grade of C or higher in 031:012 or equivalent, and 031:043 or 031:120 or equivalent.

031:135 Principles of Behavioral Analysis 3 s.h.
Experimental analysis of behavior; application of behavior analysis to broad range of topics in psychology, including reflexive behavior, perception, learning, motivation and emotion, memory and cognition, language, abnormal behavior, drug addiction, social behavior; consideration of behaviorism and behavior theory. Prerequisites: grade of C or higher in 031:012 or 031:016 or equivalent, and 031:043 or 031:120 or equivalent.

031:136 Behavioral Endocrinology 3 s.h.
Basic concepts, sexual differentiation of brain, male and female psychology, sexual behavior and cognitive function; aggression, hormone; biological rhythms, mood. Prerequisites: grade of C or higher in 031:012 or equivalent, and 031:043 or 031:120 or equivalent.

031:138 Health Biopsychology 3 s.h.
The biological bases of behavior presented and applied to understand the nature of physical and mental pathological processes. Prerequisites: grade of C or higher in 031:012 or 031:152 or equivalent, and 031:043 or 031:120 or equivalent.

031:140 Psychology of Interpersonal Relations 3 s.h.
Theories, empirical findings, speculation from social psychology and related disciplines regarding how people form, maintain, and alter close, interpersonal relationships. Prerequisites: grade of C or higher in 031:015 or equivalent, and 031:043 or 031:120 or equivalent.

031:141 Loss and Trauma 3 s.h.
How people deal with loss—personal (e.g., aging) and interpersonal (e.g., death and divorce). Prerequisites: grade of C or higher in 031:015 or equivalent, and 031:043 or 031:120 or equivalent.

031:152 Health Psychology 3 s.h.
Psychological contributions to understanding etiology, prevention, treatment of physical illness; basic and clinical research that addresses reciprocal effects of behavior and physical health. Prerequisites: grade of C or higher in 031:012 or 031:015 or equivalent, and 031:043 or 031:120 or equivalent.

031:163 Abnormal Psychology 3 s.h.
Adult psychiatric disorders (e.g., anxiety disorders, affective disorders, antisocial personality, schizophrenia, substance abuse); emphasis on theories of etiology and psychological processes underlying psychopathology. Prerequisites: grade of C or higher in 031:012 or equivalent, and 031:043 or 031:120 or equivalent.

031:166 Childhood Psychopathology 3 s.h.
Major forms of childhood psychopathology; current theoretical approaches and methodological issues in diagnosis, conceptualization, treatment of developmental psychopathology. Prerequisites: grade of C or higher in 031:013 or equivalent, and 031:043 or 031:120 or equivalent.

031:170 Behavior Modification 3 s.h.
Basic approaches to modification of clinically disturbing behavior; learning theory principles underlying techniques, translation into procedures, experimental evaluation of effectiveness. Prerequisites: grade of C or higher in 031:013 or equivalent, and 031:043 or 031:120 or equivalent.

031:172 Disease and Development 3 s.h.
Dynamical systems theory, its application to basic problems in developmental psychology; development of motor control, cognition, language; comparisons with other theoretical approaches in developmental psychology. Prerequisites: grade of C or higher in 031:013 or equivalent, and 031:043 or 031:120 or equivalent.

031:201 Advanced Social-Personality Psychology 3 s.h.
Classic and contemporary theory, research, methodological issues in social-personality psychology. Prerequisite: consent of instructor.

031:202 Attitudes and Persuasion 3 s.h.
Classic and current theories and findings on persuasion, the formation and measurement of attitudes. Prerequisite: consent of instructor.

031:206 Advanced Social Cognition 3 s.h.
Research and theory on cognitive processes that underlie judgment, decision, belief, and behavior in social situations; attribution, heuristics, counterfactual thinking, schemas, person perception, stereotypes, attitudes.

031:208 Psychology of Close Relationships 3 s.h.
Theory, general writing, empirical analysis of variables involved in initiation, maintenance, termination of close relationships; emphasis on social psychological processes, concepts. Prerequisite: consent of instructor.

031:212 Perceptual-Cognitive Development in Infancy 3 s.h.
Knowledge acquisition during first two years of life, development of visual, speech, bimanual perception, imitation; object concept and permanence; early perceptual concepts. Prerequisite: consent of instructor.

031:214 Processes of Language Acquisition 3 s.h.
Theoretical and empirical approaches to the study of first language acquisition from infancy to five years, including phonetic sound discrimination, babbling, semantic development, categorization abilities, syntactic and grammatical development. Prerequisite: consent of instructor.

031:220 Proseminar in Cognition and Perception 3 s.h.
Broad overview of study of cognition and perception, current psychological, computer science and artificial intelligence, linguistics, neuroscience, philosophy of mind. Repeatable. Prerequisite: consent of instructor.

031:223 Neural Networks in Psychology 3 s.h.
Major techniques in neural network or connectionist modeling, specific application to issues in psychology. Prerequisite: consent of instructor.

031:226 Visual Perception 3 s.h.
Theoretical and empirical analyses of low- and high-level visual functions, including edge detection, surface representation, object identification.

031:230 Behavioral Pharmacology 3 s.h.
Behavioral analysis of drug action, emphasis on physiological, biomechanical mechanisms underlying behavioral processes in experimental animals, humans. Same as 071:230.

031:234 Developmental Psychobiology 3 s.h.
Biological bases of behavior in developing organisms; may include thermoregulation, digestion, sleep, parents/infant interactions, sensory motor control, learning, memory.

031:236 Biological Bases of Behavior 3 s.h.
Physiological underpinnings of behavior and cognition; psychological concepts such as perception, motivation, emotion, reinforcement, learning, and thinking explored at molecular cellular, systems levels.

031:240 Judgment and Decision Making 3 s.h.
Models, methods used in study of human judgments and decisions; applications in areas such as clinical diagnosis, social and educational evaluations, economic judgments, consumer decisions.

031:241 Behavioral and Cognitive Neuroscience I 3 s.h.
Concepts, methods, and findings in behavioral and cognitive neuroscience; emphasis on principles of neuroscience, sensation, motivation, emotion. Prerequisite: consent of instructor. Same as 132:241.

031:242 Behavioral and Cognitive Neuroscience II 3 s.h.
Concepts, methods, and findings in behavioral and cognitive neuroscience; emphasis on principles of comparative psychology, motor control, learning. Prerequisite: consent of instructor. Same as 132:242.

031:244 Behavioral Neuroscience 3 s.h.
Basic principles of neuroscience, neuropharmacology, developmental neuroscience, behavioral neuroscience. Prerequisite: consent of instructor.

031:250 Introduction to Health and Behavioral Science 3 s.h.
Evolution of health psychology; survey of major physiological systems in which pathology is affected by behavioral processes; review of theoretical approaches, experimental paradigms from behavioral science as they may apply to assessment of health problems; prevention, intervention, psychological adaptation to physical disease. Prerequisite: consent of instructor.

031:252 Clinical Behavioral Medicine 3 s.h.
Biopsychosocial framework applied to study, treatment of chronic and acute physical conditions; clinical concepts, procedures. Prerequisite: consent of instructor.

031:256 Personality and Individual Differences 3 s.h.
Major theoretical, empirical issues in contemporary personality research, including stability and consistency of behavior, influence of environment and personality development, nature and organization of traits, validity of trait-based cognitive psychology, computer science and artificial intelligence, linguistics, neuroscience, philosophy of mind. Repeatable. Prerequisite: consent of instructor.

031:260 Descriptive Psychopathology 3 s.h.
Psychiatric syndromes, including description, etiology, experimental and clinical research; development, function of classification systems. Prerequisite: consent of instructor.
031:261 Experimental Psychopathology  3 s.h.
Theory of psychological processes underlying etiology of psychopathology; emphasis on schizophrenia, affective disorders, anxiety, sociopathy, drug abuse.

031:263 Psychological Appraisal I  3 s.h.
Assessment theory and basic psychometric principles in test construction, evaluation, application; ethical, social, psychological, psychometric issues and controversies in assessment. Prerequisite: consent of instructor.

031:264 Psychological Appraisal II  3 s.h.
Introduction to assessment with children and adults, including assessment of cognitive abilities and achievement testing, neuropsychological assessment, and psychodiagnostic/personality assessment. Prerequisites: 031:263 or equivalent, and consent of instructor.

031:265 Neuroscience Seminar  0-1 s.h.

031:266 Psychological Therapies  3 s.h.
Historical development and current status of empirically based therapies for psychological disorders, including anxiety, depression, schizophrenia, childhood disorders; emphasis on critical evaluation of therapy techniques.

031:270 Clinical Research Methods  3 s.h.
Scientific basis of rigorous psychological research; conceptual and methodological processes that underlie sound research; development of capacity for critical evaluation of the research process. Prerequisite: consent of instructor.

031:276 Advanced Developmental Psychopathology  3 s.h.
Psychiatric syndromes manifested in childhood and adolescence; theoretical approaches, methodology from developmental and clinical psychology as they apply to study of childhood psychopathology. Prerequisite: consent of instructor.

031:278 Principles of Neuropsychology  3 s.h.
Basic principles of brain-behavior relationships, clinical and experimental applications of neuropsychology, research methods, disorders of higher cognitive and behavioral functions and their neural correlates. Prerequisite: consent of instructor.

031:291 Problems in Psychology  arr.
Individual study. Prerequisite: consent of instructor.

031:295 M.A. Thesis Research  Prerequisite: consent of instructor.

031:296 Ph.D. Dissertation Research  Prerequisite: consent of instructor.

031:297 Research Projects  arr.
Prerequisite: consent of instructor.

031:302 Seminar: Personality and Social Psychology  1 s.h.
Professional issues, current topics relevant to personality, social psychologists. Repeatable. Prerequisite: consent of instructor.

031:314 Seminar: Theories of Development  0-2 s.h.
Current theories of development (e.g., Piagetian, dynamic systems, nativist, connectionist, social learning, contextual theories; concepts used to explain what changes occur, and how these changes occur) Repeatable.

031:318 Seminar: Cognitive Development  0-3 s.h.
Theoretical, methodological issues focused on cognitive and perceptual development. Repeatable.

031:330 Seminar: Cognitive Psychology  2 s.h.
Repeatable. Prerequisite: consent of instructor.

031:335 Seminar: Cognitive Neuroscience  0-2 s.h.
Neuropsychological and behavioral investigations of attention, perception, learning, memory, decision making, planning, contemporary models, theories. Prerequisite: consent of instructor.

031:338 Seminar: Advanced Topics in Behavioral and Cognitive Neuroscience  3 s.h.
Prerequisite: 031:341 or consent of instructor.

031:350 Seminar: Psychology in Medical Settings  1 s.h.
Introduction to evaluation, research, and intervention with medical patients. Prerequisite: consent of instructor.

031:360 Seminar: Orientation to Clinical Research  0-1 s.h.
Issues in clinical research, including use of databases, adviser/advisor relationships, preparation of IRB proposals, paper presentation and publication, common early career problems, funding resources.

031:370 Seminar: Health Psychology  0-2 s.h.
Theoretical and methodological issues, focus on specific topics, such as chronic disease, psychoneuroimmunology. Repeatable. Prerequisite: consent of instructor.

031:380 Ethics and Professional Concerns  arr.
Major ethical and legal issues relevant to clinical psychologists’ varied roles; understanding of legal and ethical issues encountered by psychologists in varied settings, development of personal working model for resolving ethical and professional concerns.

031:461 Introductory Practicum  Prerequisite: consent of clinical training committee.

031:463 Therapy Practicum  Prerequisite: consent of clinical training committee.

031:464 External Practicum  Prerequisite: consent of clinical training committee.

RESEARCH MAJORS
Chair: Raymond A. Mentzer
Professors: T. Dwight Bozeman (Religious Studies/History), Jay A. Holstein, David E. Klemm, J. Kenneth Kuntz, Raymond A. Mentzer, Robert E. Wein
Professors emeriti: Robert D. Baird, David R. Bellum, John P. Boyle, George W. Forell, Helen T. Goldstein, James F. McCue, George W. McKee, W. Pachow, George W. Paterson
Associate professors: Diana Fritz Cates, Ralph Keen, Janine T.A. Sawada, Frederick M. Smith (Religious Studies/Asian Languages and Literature), Richard B. Turner (Religious Studies/African American World Studies)
Assistant professors: Micheline Pesantubbe (Religious Studies/American Indian and Native Studies), Morten Schnüter
Undergraduate degree: B.A. in Religious Studies
Undergraduate nondegree program: minor in Religious Studies
Graduate degrees: M.A., Ph.D in Religious Studies
Web site: http://www.uiowa.edu/religion

Religion is a major factor in human culture, with the power to unify society as well as to disrupt and divide it. Given the diversity of cultures in a shrinking global context, an understanding of religion and its personal and social roles is a significant element in a liberal arts and sciences education. The Department of Religious Studies helps students acquire an appreciative and critical understanding of the history and literature of major religions in the East and West, and insight into the nature and meaning of the religious dimensions of human culture. The department recognizes that religious activity is expressed in countless ways. Therefore, it offers a wide range of courses that explore facets of religion in cultures across the world. Topics and issues include religious texts and thinkers as well as how culture, tradition, and experience intersect. Diverse academic methods—including historical, textual, artistic, and literary approaches—are used to study the variety of ways in which religions have formulated values and addressed matters of ultimate concern.

Undergraduate Program
Each year thousands of University students enroll in courses in religious studies. Many are taking courses to complete the College of Liberal Arts and Sciences General Education Program. Some students choose religious studies as their major, a second major, or a minor to complement studies in another field.

Religious studies majors acquire core skills they will need to flourish in today's world: logical thinking, writing, communicating, and working with others, as well as open-mindedness to new ideas.

Students who choose to major in religious studies may count a maximum of three religious studies courses approved for the General Education Program as part of the 30 s.h. in religious studies required for the major. Transfer students may include up to 15 s.h. of transfer credit toward the major. Transfer credit is evaluated on an individual basis.

Required Courses
To graduate with a B.A. in religious studies, students must take 15 s.h. in foundation studies, 12 s.h. in continuing studies, and the senior seminar.

FOUNDER STUDIES
Western Religious Traditions
Two of these:
032:001 Judeo-Christian Tradition  3 s.h.
032:011 Old Testament Survey  3 s.h.
032:013 Personalities of the Old Testament  3 s.h.
032:025 Medieval Religion and Culture  3 s.h.
032:026 Modern Religion and Culture  3 s.h.
032:030 Introduction to Islam  3 s.h.

Asian Religious Traditions
Two of these:
032:004/039:004 Living Religions of the East  3 s.h.
032:006/039:006 Introduction to Buddhism  3 s.h.
032:010/039:007 Chinese Religions  3 s.h.

Theoretical and Comparative Studies in Religion
One of these:
032:002 Religion and Society  3 s.h.
032:003 Quest for Human Destiny  3 s.h.
032:016 Religion and Liberation  3 s.h.
032:020 Religion and Conflict in the Contemporary World  3 s.h.

CONTINUING STUDIES
Students must take 12 s.h. of course work in continuing studies to complete the major. This course work must be chosen from courses in one of three areas of concentration: western religious traditions; Asian religious traditions; or religion, culture, and society. Lists of approved courses for each of the three concentration areas are available from the Department of Religious Studies office.
Before the fifth semester begins: one or two graduation one-quarter of the semester hours required for graduation.

The Department of Religious Studies offers the students develop valuable research skills. a substantial methodological dimension, and help a broad intellectual and cultural context, provide department's graduate programs place religion in nonprofit, or governmental organization. The above 032:050.

be taken at The University of Iowa in upper-level at least 2.00. Of the 15 s.h., at least 12 s.h. must credit in religious studies courses with a g.p.a. of 3.00. A minor in religious studies requires 15 s.h. of

Honors
Students who maintain a cumulative University of Iowa g.p.a. of at least 3.33 are eligible for membership in the University Honors Program (contact the University Honors Program for more information). Honors majors must complete a total of 33 s.h. to fulfill the requirements for the religious studies major. Students must take 032:198 Honors Essay under the individual supervision of a faculty adviser. Copies of the completed and approved essay are submitted both to the Department of Religious Studies and to the University Honors Program. Honors students may apply 3 s.h. of 032:195 Individual Study toward their 12 s.h. requirement in the area of concentration.

Minor
A minor in religious studies requires 15 s.h. of credit in religious studies courses with a g.p.a. of at least 2.00. Of the 15 s.h., at least 12 s.h. must be taken at The University of Iowa in upper-level religious studies courses, including 032:007, 032:008, 032:009, and all courses numbered above 032:050.

Master of Arts
The M.A. degree program is designed for students who wish to advance and deepen their understanding of religion. The degree is available with or without thesis. It requires 30 s.h. of graduate work in religion, 24 of which must be taken at The University of Iowa, and a cumulative g.p.a. of at least 3.00. Requirements for languages and other research tools vary according to the focus of study. The M.A. program is highly flexible, based on student's interests. M.A. students are supervised by a three-person faculty committee.

In the M.A. thesis, students demonstrate and refine their research and writing skills. The thesis may count for six of the 30 semester hours.

Students must pass an M.A. examination that tests their competence in completed course work.

Doctor of Philosophy
The Ph.D. program prepares a select number of students to become specialists in the study and teaching of religion. The department's program trains students in the research skills they will need to become productive scholars in their chosen field of study. It also trains them to teach religious studies across a broad range of traditions and methods, and it provides rich experiences in the classroom for future teachers.

The Ph.D. program requires 72 s.h. of course work, 24 of which may be transferred from another accredited graduate school. Formal admission to Ph.D. candidacy occurs during the student's fourth semester of residency, providing the following conditions are met:

- completion of three of the four required courses, with the fourth in progress (see "Graduate Programs," above);
- evidence of the ability to write scholarly papers;
- a cumulative University of Iowa g.p.a. of at least 3.40;
- satisfactory University of Iowa g.p.a. of at least 3.40;
- satisfactory progress toward the language requirements of the individual student's program; and
- submission of a plan of study.

Course requirements vary in the different areas of concentration (see "Graduate Programs," above). However, all students must take at least four graduate seminars in their area and complete the four general courses designed specifically for graduate students.

Students must pass a comprehensive examination based on a bibliography that covers the foci within each area. They also must write a dissertation based on original research, and they must defend it in oral examination. The dissertation may count for as much as 12 s.h.

Students working toward a Ph.D. may receive an M.A. upon completing at least 30 s.h. of course work and successfully passing the comprehensive examination.

More detailed information on graduate programs in religious studies is available in the department's office or on its web site, or from the University’s Office of Admissions.

Admission
All applicants for admission to graduate study must meet the general requirements of the Graduate College (see Manual of Rules and Regulations of the Graduate College in the Graduate College section of the Catalogi). Applicants to the M.A. program must have a combined verbal-quantitative score of at least 1050 on the Graduate Record Examination (GRE) General Test and a g.p.a. of at least 3.00 for admission to the M.A. program. Applicants to the Ph.D. program must have a combined verbal-quantitative score of at least 1100 on the GRE General Test and a g.p.a. of at least 3.40 for admission to the Ph.D. program. All applicants must submit three letters of recommendation and a writing sample demonstrating the ability to engage in critical thinking.

Financial Support
The Department of Religious Studies offers financial support for graduate students in the form of research and teaching assistantships as well as graduate college fellowships. The department also may nominate eligible applicants for the Presidential Graduate Fellowship. The Gilmore Scholarship, for doctoral students interested in the relationships among religion, the visual arts, and humanistic values, pays up to full tuition for one year.

Financial aid awards are made annually on a competitive basis.
Language Study at the University

In addition to Greek, Latin, and modern European languages, the University offers courses in Japanese, Chinese, Sanskrit, and Hindi.

Courses

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<tr>
<th>Course Number</th>
<th>Title</th>
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<td>032:001</td>
<td>Judeo-Christian Tradition</td>
<td>3 s.h.</td>
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<td>032:002</td>
<td>Religion and Society</td>
<td>3 s.h.</td>
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<td>032:003</td>
<td>Quest for Human Destiny</td>
<td>3 s.h.</td>
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<td>032:004</td>
<td>Living Religions of the East</td>
<td>3 s.h.</td>
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<td>032:006</td>
<td>Introduction to Buddhism</td>
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<tr>
<td>032:008</td>
<td>Asian Humanities: India</td>
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<td>Asian Humanities: China</td>
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<td>Biblical Hebrew II</td>
<td>3 s.h.</td>
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<tr>
<td>032:102</td>
<td>Biblical Hebrew III</td>
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<td>032:103</td>
<td>Biblical Archaeology</td>
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<td>032:104</td>
<td>Egyptian Art</td>
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<td>032:105</td>
<td>The World of the Old Testament</td>
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<td>032:106</td>
<td>Theology of the Old Testament</td>
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<td>032:107</td>
<td>The Psalms and Wisdom of Biblical Israel</td>
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<td>032:112</td>
<td>The Bible in Film: Hollywood and Moses</td>
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<td>032:117</td>
<td>Death, Dying, and Tradition</td>
<td>2-3 s.h.</td>
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<td>032:118</td>
<td>Roman Religion and Society</td>
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<td>032:121</td>
<td>The Hebrew Bible and Diet</td>
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<td>032:122</td>
<td>The World of the New Testament</td>
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<td>032:125</td>
<td>Libraries in Western Culture</td>
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<td>032:126</td>
<td>Twentieth-Century African American Religion: Civil Rights to Hip-Hop</td>
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<td>032:131</td>
<td>Sexual Ethics</td>
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<td>032:132</td>
<td>Medieval and Reformation Religion</td>
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<td>032:137</td>
<td>Religion and Reformation Thought</td>
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<td>032:138</td>
<td>Religious Thought in the Twentieth Century</td>
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<td>032:139</td>
<td>Religious Thought in Enlightenment</td>
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<td>032:142</td>
<td>The Puritan Experience</td>
<td>2-3 s.h.</td>
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<td>032:143</td>
<td>American Religion in the Twentieth Century</td>
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<td>032:144</td>
<td>Nonprofit Organizational Effectiveness</td>
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<td>032:148</td>
<td>Religious Thought for Persons suffering from life-changing, life-threatening illnesses</td>
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<td>032:153</td>
<td>American Indian Revitalization</td>
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<td>Chinese Religions</td>
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<td>African American Islam/International Perspective</td>
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<td>032:162</td>
<td>Medieval and Reformation Religion</td>
<td>3 s.h.</td>
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<td>032:163</td>
<td>Religious Thought in Enlightenment</td>
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<tr>
<td>032:164</td>
<td>Religious Thought in the Nineteenth Century</td>
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<tr>
<td>032:168</td>
<td>Religious Thought in the Twentieth Century</td>
<td>3 s.h.</td>
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<tr>
<td>032:170</td>
<td>Religion and Literature</td>
<td>3 s.h.</td>
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<tr>
<td>032:171</td>
<td>Religious Thought in Enlightenment</td>
<td>3 s.h.</td>
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<tr>
<td>032:172</td>
<td>Theological survey, concepts of sacred book, religion, world's end, church and state, family, women, indians, sex</td>
<td>3 s.h.</td>
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<tr>
<td>032:173</td>
<td>Selected American thinkers</td>
<td>3 s.h.</td>
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</table>
read with understanding and enjoyment, and write and speak about reading with personal authority and analytical skill;

use writing and speaking to discover and explain, question and defend controversial ideas;

take into account fundamental rhetorical concepts such as audience, purpose, and appropriateness in discussing controversies and in devising effective communication.

All undergraduates—including transfer students—must complete the rhetoric component of the General Education Program in one of the following ways:

pass 010:001 Rhetoric I and 010:002 Rhetoric II (total of 8 s.h.);

pass 010:003 Accelerated Rhetoric (4 s.h.) or 010:005 Rhetoric of Scientific Inquiry (4 s.h.);

earn credit through the AP program and pass 010:006;

transfer 3 s.h. of credit in an expository writing course and pass 010:003 Accelerated Rhetoric;

transfer 3 s.h. of credit in a public speaking course and pass 010:003 Accelerated Rhetoric;

transfer 3 s.h. of credit in an expository writing course and 3 s.h. of credit in a public speaking course and pass 010:004; or

transfer 6 s.h. of credit in two expository writing courses and pass 010:006.

During their first semester at the University, students should enroll in the rhetoric course indicated on their degree evaluations (unless a delay is required). Students must enroll in a rhetoric course each semester until the requirement has been satisfied. Students must complete all ESL prerequisites before registering for any rhetoric course.

Placement is ordinarily determined by ACT or SAT scores and any available transfer credit.

Students who question their placement should bring their degree evaluations and their ACT or SAT scores to the Rhetoric Department office during registration.

Students who have undergone formal evaluation by Student Disability Services and are found to be learning disabled in reading, writing, or speaking should request reasonable accommodations in order to complete rhetoric. Accommodations may be arranged by Student Disability Services in consultation with the Rhetoric Department and individual instructors.

Satisfactory completion of rhetoric is a prerequisite for the General Education Program course 08G:001 "The Interpretation of Literature."

**Courses for Undergraduates**

**For Undergraduates**

**General Education**

010:001 Rhetoric I 4 s.h.

First semester of a two-semester sequenced course; speaking, writing, and critical reading, with emphasis on controversy, competence in research, analyzing, organizing, and presenting diverse points of view, and in adapting discourse to readers and listeners. GE: rhetoric.

010:002 Rhetoric II 4 s.h.

Second semester of a two-semester sequenced course; speaking, writing, and critical reading, with emphasis on advocacy. GE: rhetoric.

010:003 Accelerated Rhetoric 4 s.h.

Combines 010:001 and 010:002 into a one-semester accelerated course. Placement based on ACT scores. GE: rhetoric.

010:004 Writing and Reading 3 s.h.

Writing portion of the accelerated course 010:003; introductory course in writing required of students who have completed a college-level public speaking course but have not had an equivalent college or university writing course or earned exemption by receiving a score of 3 or above on the Advanced Placement English test. GE: rhetoric. Prerequisite: fulfillment of speaking requirement.

010:005 Rhetoric of Scientific Inquiry 4 s.h.

Introduction to ways of inquiry and communicating scientific knowledge. GE: rhetoric. Same as 033:005.

010:006 Speaking and Reading 3 s.h.

Speaking portion of the accelerated course 010:003; introductory course in speaking required of students who have completed a college-level writing course but have not had an equivalent college or university speaking course; intended to improve speaking, listening, critical, analytical, and advocacy skills. GE: rhetoric. Prerequisite: fulfillment of writing requirement.

**Other Courses**

010:009 Individual Instruction in Writing 2 s.h.

Focus on needs, interests of student. Prerequisites: no fulfillment of rhetoric requirement and consent of Writing Center director.

The following rhetoric courses are offered on a three-year cycle and more frequently when possible.

010:029 First-Year Seminar 1-2 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first or second-semester standing.

010:042 IBA Writing for Biological Researchers 3 s.h.

Prerequisites: Iowa Biosciences Advantage standing and consent of instructor. Same as 168:042.

**For Undergraduate and Graduate Students**

010:128 Racial Narrative and American Performance 3 s.h.

Same as 048:128, 129:128.

010:131 Classical Rhetoric and Greek Culture 3 s.h.

Origins, development of the art of rhetoric from Sophists to Aristotle; significance to Greek culture from fifth to fourth century B.C. GE: humanities. Same as 036:143.

010:141 Rhetoric and Past Public Controversy 3 s.h.

Role of rhetoric in public controversy in particular historical time periods; focus on various perspectives, diverse voices, and multiple arguments informing particular movement/issues. GE: historical perspectives. Same as 036:158.

010:160 Issues in Rhetoric and Culture 3 s.h.

Rhetorical theory and criticism as culturally embedded practices; rhetorical production of selves and social difference; relationships between rhetoric and literature, philosophy, popular texts. Repeatable. Same as 036:263.

010:310 Colloquium: Teaching Rhetoric arr.

010:360 Issues in Rhetoric and Culture 3 s.h.

Rhetorical theory and criticism as culturally embedded practices; rhetorical production of selves and social difference; relationships between rhetoric and literature, philosophy, popular texts. Repeatable. Same as 036:263.

010:375 Teaching in a Writing Center 3 s.h.

Seminar/practicum to prepare graduate students to teach in The University of Iowa Writing Center or similar settings; seminar component on writing and reading processes, tutoring strategies, English-as-a-Second-Language issues, practicum experience tutoring in the Writing Center. Same as 08N:375.

010:550 Special Project for Graduate Students arr.

010:600 Seminar in Rhetorical Theory 1-4 s.h.

Same as 036:336.

**RUSSIAN**

Program coordinators: Margaret H. Mills, Russell Valentino

Professor: Margaret H. Mills


Associate professor: Russell Valentino

Associate professor emeritus: Christopher A. Wertz

Assistant professor emerita: Miriam J. Gelfand

Lecturers: Irina Kostina, Jitka Sonkova

Undergraduate degree: B.A. in Russian

Undergraduate nondegree program: minor in Russian

Graduate degree: M.A. in Russian

Web site: http://www.uiowa.edu/~russian

The Russian program trains students in both written and spoken Russian and in Russian literature. It also provides them with an understanding and appreciation of Russian culture. A knowledge of Russian is seldom an end in itself, rather it complements another endeavor. Accordingly, the program encourages all of its students to pursue a joint major and to develop their interests in related or complementary fields.
Historically at Iowa, many students have combined study of Russian with a double major in economics, history, linguistics, or political science. Recent trends have shown an increase in Russian students pursuing the International Business Certificate. These students enhance their future employment opportunities and lay a better foundation for graduate and professional programs in Russian area studies.

Through the University's Bachelor of Arts degree program in international studies, interested students can focus their undergraduate training on a broader interdisciplinary understanding of this region of the world. For more information on this complementary B.A. program, see the International Studies section of the Catalog.

With the continued importance of Russian as a language of science and commerce, many students find that training in the language is an important asset to careers in the natural and physical sciences, engineering, medicine, and business. Students of journalism, library science, and the social and military sciences also have strengthened their career preparation through the study of Russian. Some students major in Russian before going into law, international relations, or another profession; others study Russian as preparation for graduate work in Slavic languages and literatures, comparative literature, English, or other humanistic disciplines.

Russian majors with a B.A. and the required education courses occasionally seek teaching careers in secondary schools (see the relevant teacher-preparation programs in the College of Education section of the Catalog). A number of governmental agencies annually interview job candidates who have advanced training in Russian; these agencies give preference to applicants who couple strong language proficiency with a well-rounded background in area studies. Students who develop an exceptional facility with the language may pursue careers in literary and technical translation and interpretation.

**Undergraduate Program**

Students working toward the B.A. in Russian must meet the College of Liberal Arts and Sciences general degree requirements and earn at least 28 s.h. of credit in advanced Russian courses. Required courses are as follows.

- **One of these:**
  - 041:109 Beginning Composition and Conversation I 4 s.h.
  - 041:110 Beginning Composition and Conversation II 4 s.h.
  - Both of these sequences:
    - 041:111-041:112 Third-Year Russian I-II 8 s.h.
    - 041:113-041:114 Fourth-Year Russian I-II 8 s.h.
  - Three of these:
    - 041:098 Introduction to Russian Culture 3 s.h.
    - 041:099 Russia Today 3 s.h.
    - 041:100 Russian Literature in Film 3 s.h.
    - 041:101 Russian Literature in Translation 1800-1860 3 s.h.
    - 041:102 Russian Literature in Translation 1860-1917 3 s.h.
    - 041:103 Russian Literature since 1917 3 s.h.

Russian majors in Russia are urged to choose elective courses in economics, geography, history, or political science. Nearly every avenue of professional training and employment requires a solid background in Russian area studies. For example, criteria for U.S. Government employment include substantive knowledge in history, economics, political science, sociological disciplines, scientific specialties, demography, military-related skills, and in some cases cultural and religious background. In-depth knowledge of literature or linguistics without other substantive background may be of limited practical use in gaining employment.

**Four-Year Graduation Plan**

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan.

**Before the third semester begins:**

- Competence in first-year Russian and at least one-quarter of the semester hours required for graduation

**Before the fifth semester begins:**

- Competence in second-year Russian and at least one-half of the semester hours required for graduation

**Before the seventh semester begins:**

- Competence in third-year Russian, an additional course in the major, and at least three-quarters of the semester hours required for graduation

**Before the eighth semester:**

- Competence in fourth-year Russian and two more courses in the major

**During the eighth semester:**

- Enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

**Honors**

Russian majors of junior or senior standing with a g.p.a. of at least 3.33 in Russian and a cumulative University of Iowa g.p.a. of at least 3.33 may enroll in the honors program in Russian. An extensive reading program with discussions, regular reports, and a semester paper constitute each honors work unit of 3 s.h. Students may take up to 9 s.h. of honors in Russian.

Contact the University Honors Program for more information about honors study at Iowa.

**Minor**

A minor in Russian requires 15 s.h. with a g.p.a. of at least 2.00. Of the 15 s.h., 12 must be taken at The University of Iowa in advanced courses. The program recommends that students seeking a minor in Russian focus their preparation on 100-level courses, such as the sequences 041:109 and 041:110, 041:111 and 041:112, and 041:113 and 041:114. Up to 3 s.h. in courses taught exclusively in English may be counted toward the minor.

**Elementary and Secondary Teaching Licensure**

Russian majors interested in licensure to teach in elementary and/or secondary schools must successfully complete the requirements for a major in Russian and must be admitted to the College of Education's foreign language teacher education program. Several courses in the College of Education are required, as is one semester of student teaching in the senior year. All students in the program have the option of earning a K-12 endorsement to teach Russian, along with the bachelor's degree. For information about the foreign languages teacher education program and graduate programs in foreign language education, contact the College of Education, Division of Curriculum and Instruction.

Students who plan to use a Russian minor to teach at the elementary and/or secondary level must contact the College of Education concerning requirements.

**Language for Nonmajors**

The program offers a sequence of courses that may be used to complete the General Education Program. Students who have had experience with Russian should take the Russian Foreign Language Placement Test, offered during summer orientation programs and monthly by Evaluation and Examination Service. The test helps determine the level at which a student should begin Russian language study at The University of Iowa. Students with no background in Russian should begin their study with 041:001. The sequence 041:001, 041:002, 041:003, and 041:004 can be used to complete the General Education Program foreign language component. The Russian program also offers course work in several East European languages, including Czech, Serbo-Croatian, and Polish.

**Graduate Program**

Admission to the graduate program in Russian has been suspended.

**Summer and Study Abroad Programs**

The program strongly encourages students to participate in intensive programs of language study, both in the United States and in Russia. University of Iowa students participate in summer, semester, or academic year programs under the auspices of the American Council of Teachers of Russia (ACTR), the association that directs academic language training programs in Moscow and St. Petersburg.

Before they study abroad, many students advance and refine their Russian language skills in various intensive summer programs at major American
universities, including The University of Iowa. Inquiries should be directed to the Russian program.

Course Work for Nonmajors
A number of classes are open to all University students and are offered in English. These include survey courses in Russian literature and culture, a monograph course on Tolstoy and Dostoievsky, and courses on women in Russian society and Russia today.

Special Activities
The International Crossroads Community is located in Hillcrest Residence Hall. It welcomes both American and international students to broaden their knowledge of international issues and foreign languages and cultures. Its programs, designed for students of Russian as well as other languages, include weekly language dinners with students and faculty, public festivals and celebrations of cultural holidays, educational presentations on topics such as study abroad and international careers, and music and theater performances.

Language Media Center
The University’s Language Media Center provides facilities for language learning, teaching, and research. Equipment in the center includes state-of-the-art computer, audio, and video facilities as well as standard and short-wave radios, tape and cassette recorders, record players, and soundproof recording rooms. An electronic classroom, a soundproof workroom, and a library of tape, disc, and cassette recordings also are available.

Courses
For Undergraduate and Graduate Students

041:001 First-Year Russian I 4 s.h.
Basic language skills—listening, speaking, reading, and writing; fundamentals of Russian grammar. GE: Foreign language.

041:002 First-Year Russian II 4 s.h.
Continuation of 041:001. GE: Foreign language. Prerequisite: 041:001.

041:003 Second-Year Russian I 4 s.h.
Transition to upper-level study through oral practice, grammar exercises, tapes, videos, readings from the Russian press. GE: Foreign language. Prerequisite: 041:002 or equivalent.

041:004 Second-Year Russian II 4 s.h.
Continuation of 041:003. GE: Foreign language. Prerequisite: 041:003.

041:008 Introduction to Russian Culture 3 s.h.
Development of art forms in Russia from middle ages to present; painting, music architecture, literature viewed against their political, historical, and social settings. Taught in English. GE: Foreign civilization and culture.

041:099 Russia Today 3 s.h.
Contemporary Russia, with focus on prevailing social, political, economic, ethnic, environmental conditions; attention to historical evolution of problems, current factors; what these factors might portend for the future. Taught in English. GE: Foreign civilization and culture.

041:100 Russian Literature in Film 3 s.h.
Transposition between the media of literature and film.

041:101 Russian Literature in Translation 1800-1860 3 s.h.
Major writers, themes, genres, and movements, including Pushkin, Lermontov, Gogol, Turgeniev, Chernyshevsky, Goncharov, Dostoievsky; analytical and literary/historical approach, with attention to the polemic between Westernizers, Slavophiles. Taught in English. GE: Humanities.

041:102 Russian Literature in Translation 1860-1917 3 s.h.

041:103 Russian Literature since 1917 3 s.h.
Major writers, themes, genres, movements associated with post-1917 Russian literature, especially the literary ferment of the 1920s; regeneration of literary expression from the early 1930s to Stalin’s death; major trends in post-Stalin literature. Taught in English.

041:104 Health Care and Health Reforms in Russia 3 s.h.
Societal changes and their continuing effect on the Russian health care system; guest lectures from political science, public health, nursing, medicine, cultural anthropology. Same as 152:170, 174:170.

041:108 Special Readings arr.
Russian-language materials determined by student and instructor. Prerequisite: 16 s.h. of language instruction.

041:109 Beginning Composition and Conversation I 4 s.h.
Oral/aural skills developed through idiomatic usage, stylistics, phonetics, intonation, grammar review; supplemented by short stories, newspaper texts. Taught in Russian. Prerequisite: 041:004.

041:110 Beginning Composition and Conversation II 4 s.h.
Oral/aural skills developed through idiomatic usage, stylistics, phonetics, intonation, grammar review; supplemented by short stories, conversation handbooks, current periodicals. Taught in Russian. Prerequisite: 041:004.

041:111 Third-Year Russian I 4 s.h.
Advanced grammar, reading, conversation, and written skills through oral reports, compositions, conversation. Prerequisite: 041:004 or equivalent.

041:112 Third-Year Russian II 4 s.h.
Advanced grammar, reading, conversation, and written skills through oral reports, compositions, conversation. Prerequisite: 041:111 or equivalent.

041:113 Fourth-Year Russian I 4 s.h.
Perfecting spoken Russian and aural comprehension of native speech. Taught in Russian. Prerequisite: 041:112 or three years of college-level Russian or equivalent.

041:114 Fourth-Year Russian II 4 s.h.
Perfecting spoken Russian and aural comprehension of native speech. Taught in Russian. Prerequisite: 041:113 or three years of college-level Russian or equivalent.

041:115 Literary Genres in European Literature II 3 s.h.
Literary realism. Same as 008:126, 048:115.

041:121 First-Year Polish I 4 s.h.
Basic language skills—listening, speaking, reading, writing; fundamentals of grammar; emphasis on student participation; first of a two-semester sequence.

041:122 First-Year Polish II 4 s.h.
Continuation of 041:121. Prerequisite: 041:121.

041:123 Second-Year Polish I 4 s.h.
Proficiency in vocabulary and grammatical foundations of elementary Polish; use and recognition of oral, aural, written, and reading language skills. Prerequisite: 041:122.

041:124 Second-Year Polish II 4 s.h.
Continuation of 041:123. Prerequisite: 041:123.

041:125 Third-Year Polish I 3 s.h.
Advanced language skills—listening, speaking, reading, writing; advanced grammar; emphasis on student participation; first of a two-semester sequence. Prerequisite: 041:124 or equivalent.

041:126 Cult Films of the Last Soviet Generation 3 s.h.
Same as 048:126.

041:128 Topics in Russian Music and Culture 3 s.h.
A wide variety of works, from 19th-century opera to popular songs of the 1960s; musical and textural features that make the works distinctively Russian.

041:141 First-Year Czech I 4 s.h.
Basic language skills—listening, reading, speaking, writing; fundamentals of grammar; emphasis on student participation; first of a two-semester sequence.

041:142 First-Year Czech II 4 s.h.
Continuation of 041:141. Prerequisite: 041:141.

041:143 Second-Year Czech I 4 s.h.
Proficiency building in vocabulary and grammatical foundations of elementary Czech; use and recognition of oral, aural, written, and reading language skills. Prerequisite: 041:142 or equivalent.

041:144 Second-Year Czech II 4 s.h.
Continuation of 041:143. Prerequisite: 041:143.

041:147 Czech Post-World War II Society and Political History 3 s.h.
Survey of post-World War II social and political history, focusing on major events such as World War II, Prague Spring, and Velvet Revolution, from Czech and non-Czech perspectives; history, literature, and selected documentary and feature films. Taught in English.

041:155 Tolstoy and Dostoievsky 3-4 s.h.
Tolstoy’s War and Peace, Anna Karenina; Dostoievsky’s Crime and Punishments, The Brothers Karamazov; and short stories. Taught in English. Same as 008:155.

041:156 Invitation to Nabokov 3 s.h.
Nabokov’s works and his writings on Russian literature. Same as 008:156, 048:156.

041:160 Women in Russian Society 3 s.h.
Historical developments that shaped women’s role in contemporary Russian society; readings in cultural history, political science, autobiographical and fictional literature, contemporary film. Taught in English.

041:164 Topics in Russian, East European, and Eurasian Studies arr.
Same as 048:164.

041:166 The Invisible Woman 3 s.h.
Pre- and post-1989 roles of women in three Central and East European countries; approaches from the social sciences and humanities.

041:168 Twentieth-Century Czech Authors 3 s.h.
Twentieth-century prose literature of Cechoslovakia; philosophical works of Capek, Hrabal, Paral, Kundera, Klima, Havel. Taught in English. Same as 048:154.

041:170 Rise of the Russian Novel 3 s.h.
Russian literary history, theory of the novel, genre theory; Pushkin to Dostoievsky. Taught in English. Prerequisite: junior standing or higher. Same as 048:170.

041:180 Literature and Translation 3 s.h.
Same as 048:180.

041:181 First-Year Serbo-Croatian I arr.
Basic language skills—listening, reading, speaking, writing; fundamentals of grammar; emphasis on student participation; first of a two-semester sequence.

041:182 First-Year Serbo-Croatian II arr.
Continuation of 041:181. Prerequisite: 041:181.

041:183 Second-Year Serbo-Croatian I 4 s.h.
Continuation of 041:182. Proficiency in vocabulary and grammatical foundations of understanding, speaking, reading, and writing Slovenian (Bojan, Serbian). Prerequisite: 041:182 or equivalent.

041:184 Second-Year Serbo-Croatian II 4 s.h.
Continuation of 041:183. Basic grammatical forms; practice: listening, speaking, and writing Croatian (Bojan, Serbian). Prerequisite: 041:183 or equivalent.

041:187 Russian Language and Civilization 3 s.h.
Five periods of Russian language and civilization: Old Slavs and Eastern Slavs, Christianity in Russia, Tartar period, Moscow period, St. Petersburg period; historical, linguistic, and literary analysis of each period.

041:188 Topics in Russian Language and Civilization II Orthodoxy arr.

041:199 Honors Prerequisite: consent of program coordinator.
Primarily for Graduate Students

041:234 Principles of Teaching and Learning
Foreign Languages 3 s.h.
Prerequisite: Consent of instructor. Same as 009:234, 013:221, 039:234.
041:276 Seminar: Russian Linguistics 3 s.h.
May include Russian morphosyntax, colloquial Russian, Russian pragmatics, Slavic gender linguistics.
041:279 Independent Research 1-4 s.h.
Directed study. Prerequisite: Consent of instructor.

SOCIAL WORK

Director: Salome Raheim
Professor: Lorraine Dorfman, Patricia L. Kelley
Professors emeriti: H. Wayne Johnson, Thomas H. Walz
Associate professors: Amy Butler, Carol Cooksey, Jim Hall (Pediatrics/Social Work/Community and Behavioral Health), Carolyn Hartley, Susan Murty, Salome Raheim, Edward J. Saunders
Associate professor: Katherine A. Kruse, William M. Theisen

Adjunct associate professors: Lois Braverman, Rita Melissas, Brad Richardson
Clinical associate professor: Robert Jackson
Assistant professor: Miriam Landsman, Pamela Noel, Sara Sanders, Jeanne Saunders, Robert Schope, Kathleen Tangerberg
Assistant professor emerita: B. Eleanor Anstey

Adjunct assistant professors: Larry Allen, Mike Banda, James Cane, Greg Jensen, Paul Lamback, Michael Samouil, Stephen Trefe, Frank Ware, Stuart Zisman

Clinical assistant professor: Yvonne Farley, M. Billie Marchok, Julia Rembert, Judith Rinehart, Robert Vander Beek

Adjunct instructors: Susan Ackelson, Ed Barnes, Nancee Blum, Jean Boger, Varetta Braden, Lois Bunz, John Paul Chaisson, Jim Clark, Raygena Curry, Suzanne Dell, Monique DeCarlo, Schael Engel, St. Shirley Fineran, Judy Foot, Robert Freeman, Joel Fry, Dan Grinstead, Sandra Hecht, Barbara Hirsch-Gillet, William Hood, Sandra McCoe, Kathryn McKinley, Lynn Meincke-Wolters, Ron Mir, Pam Moore, Mary Newcomb, Greg Noonan, Sarah Oliver, Lori Parrott, Kathleen Royle, Elizabeth Smith, Mark Smith, Diane Sonneville, Scott Stange, Joy Sutter, Eileen Swoboda, Ellen Stabo, Michael Thompson, Diane Tonkon, Molly Twoght, Harriet VanZeile, Lisa Walt, Kristine Wartford, Ross Wilburn, Brian Wilkes, Barbara Willoughby, Carol Winnertub, Joel Wulf, Joanne Young

Undergraduate degree: B.A. in Social Work
Undergraduate nondegree program: minor in Social Work
Graduate degrees: M.S.W., Ph.D.
Web site: http://www.uow.edu/~socialwk

The School of Social Work builds knowledge about social welfare issues, policies, and practice interventions and integrates that knowledge into teaching and public service. It promotes the application of theories and practice approaches to development, implementation, and evaluation of social welfare policy and practice with vulnerable populations, especially children and the elderly.

Using family-centered and community-based practice approaches, the school prepares social workers for employment in public and private social services in home and community-based settings such as public welfare, child welfare, health, mental health, elderly services, and corrections. It also prepares them for informed community participation in social welfare issues.

Social work students are challenged to excel academically, think analytically, and apply theory to practice, in preparation for continuing their education at the graduate level.

Select Admission

The School of Social Work seeks to maintain a heterogeneous student body by enrolling students who represent diverse backgrounds and cultural perspectives.

A limited number of students are admitted to the major. The application deadline is March 1. Admission to the undergraduate program in social work requires:

- completion of 042:022 Introduction to Social Work with a grade of C or higher (should be taken no later than the sophomore year);
- a cumulative g.p.a. of at least 2.50;
- exceptions may be made for persons who do not meet the grade-point average requirement if they are strong candidates on the basis of other criteria; and
- completion of application forms and statement.

Meeting these requirements does not guarantee admission. Admission often is limited by available faculty and student resources. Applicants are advised to contact the faculty adviser and the undergraduate coordinator to obtain information on admission requirements.

For more information about admission policies, contact the school's undergraduate coordinator or admissions coordinator.

Bachelor of Arts

Undergraduate students majoring in social work must complete the College of Liberal Arts and Sciences General Education Program. The major requires 002:021 Human Biology; many students complete this course as part of the General Education Program. The minimum requirements for a B.A. in social work include the following.

002:021 Human Biology 4 s.h.
Social work courses (begins with 042:022 Introduction to Social Work and culminates with a field experience) 35 s.h.
Concentration area courses (see list of areas) 12 s.h.

Social science courses (12-14 s.h.):
030:001 Introduction to American Politics 3 s.h.
031:001 Elementary Psychology 3 s.h.
034:001 Introduction to Sociology: Principles 3-4 s.h.
One of these social science or quantitative studies elective courses:
060:001 Principles of Microeconomics 4 s.h.
060:002 Principles of Macroeconomics 4 s.h.
060:007 Contemporary Economic Problems and Policy 3 s.h.
225:002 Statistics and Society 3 s.h.
225:025 Elementary Statistics and Inference 3 s.h.
113:003 Introduction to the Study of Culture and Society 3 s.h.
113:010 Anthropology and Contemporary World Problems 3 s.h.

The school recommends that required course work be taken in the following sequence. Most social work courses are offered only once each year.

FIRST AND SECOND YEARS

002:021 Human Biology 4 s.h.
030:001 Introduction to American Politics 3 s.h.
031:001 Elementary Psychology 3 s.h.
034:001 Introduction to Sociology: Principles 3-4 s.h.
042:022 Introduction to Social Work 4 s.h.
One social science or quantitative elective course 3-4 s.h.

THIRD YEAR

042:140 Human Behavior in the Social Environment 4 s.h.
042:144 Introduction to Social Work Research 4 s.h.
042:147 Discrimination, Oppression, and Diversity 3 s.h.
042:171 Social Work Processes 3 s.h.

FOURTH YEAR

042:141 Fundamentals of Social Work Practice 3 s.h.
042:142 Interpersonal Skills Laboratory 2 s.h.
042:143 Social Welfare Policy and Practice 3 s.h.
042:189 Field Experience Seminar 1 s.h.
042:193 Field Experience 8-11 s.h.

CONCENTRATION AREA

The undergraduate program requires a minimum of 12 s.h. of course work in one of the areas listed below. Most students choose either sociology or psychology as their concentration. Students who wish to meet this requirement in an area not listed must present a written request and rationale to the faculty adviser and undergraduate coordinator. Courses used to complete the General Education Program do not count toward the 12 s.h., nor do courses used to satisfy other requirements of the B.A. in social work.

African American world studies
Aging studies
American studies
Anthropology
Business
Communication studies
**Four-Year Graduation Plan**

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

Admission to the major in social work is selective. The four-year graduation plan applies only to students who are admitted by the beginning of their fifth semester.

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

**Before the fifth semester begins:** 042:022, four courses that can be applied to the major (may include concentration area courses), admission to the major, and at least one-half of the semester hours required for graduation

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

**Before the eighth semester begins:** four or five more courses in the major and finalized field placement

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

**Honors**

The School of Social Work has an honors program leading to a Bachelor of Arts with honors in social work. A cumulative University of Iowa g.p.a. of at least 3.33 is required for participation in the program, which enables students to do in-depth study in subjects that interest them. Contact the University Honors Program for more information on honors study at Iowa.

**Minor**

Students pursuing a minor in social work must complete 042:022 Introduction to Social Work (or for transfer students, an equivalent course from another institution); maintain a g.p.a. of at least 2.00; and earn at least 12 s.h. in University of Iowa social work courses numbered 042:100 and above. Contact the B.A. coordinator for more information.

**Graduate Programs**

**Master of Social Work**

The Master of Social Work program prepares social workers for leadership in the profession and for advanced social work practice in one of two concentrations. The program’s general focus is on family systems and social change, both domestic and international.

The school offers the M.S.W. program at Des Moines, the Quad Cities, and Sioux City, as well as Iowa City. Each site provides a structured sequence of courses as well as opportunities for individualized plans of study. All sites give students access to the wealth of resources of a Research 1 University. The program’s two concentrations—family-centered practice and integrated practice—offer students knowledge and skills for working with children, elders, families, small groups, organizations, and communities. Students have the opportunity to develop competencies necessary for leadership in addressing unique social work challenges of the State of Iowa, including a high proportion of elders, recent immigrants to rural communities, and rural poverty.

The Master of Social Work requires 60 s.h., including 25 s.h. earned in foundation-level courses and 35 s.h. in advanced-level courses. Students who hold an undergraduate degree from a Council on Social Work Education program receive 12 s.h. of advanced standing and earn the master's degree with 48 s.h. All students must earn a minimum of 36 s.h. after admission to the M.S.W. program.

Students may be allowed 9 to 12 s.h. of graduate transfer credit for previous graduate work.

The school operates a year-round, sequenced graduate program that begins in the fall semester for full-time students who require the full 60 s.h. The program continues through the summer, which is a full semester. Full-time students generally earn the M.S.W. the spring semester of their second year. Those who require 48 s.h. have the option of enrolling full time or part time their first semester.

Full-time study and a four-year part-time program are available in Iowa City and Des Moines. A three-year sequence of courses is available at all sites, although the Sioux City and Quad Cities sites admit new cohorts only on a three-year cycle. All students follow a structured sequence of courses. They must maintain a cumulative g.p.a. of at least 3.00 and must be promoted each semester in compliance with the school’s student advancement policy. A thesis option is available.

Following is an outline of the full-time 60 s.h. program. Information about the three-year and four-year part-time sequence is available from the school.

**FIRST-YEAR FOUNDATION**

**Fall Semester**

- 042:140 Human Behavior in the Social Environment 3 s.h.
- 042:143 Social Welfare Policy and Practice 3 s.h.
- 042:146 Microcomputer Laboratory 1 s.h.

**Spring Semester**

- 042:147 Discrimination, Oppression, and Diversity 3 s.h.
- 042:148 Social Work Research Methods 3 s.h.

**SECOND-YEAR CONCENTRATION**

**Fall Semester**

- Elective 3 s.h.

**One of these:**

- 042:250 Family-Centered Theory and Practice I 3 s.h.
- 042:260 Integrated Social Work Theory and Practice I 3 s.h.

**Spring Semester**

- Elective 3 s.h.

**One of these:**

- 042:292 Advanced Practicum in Family-Centered Practice I and II 5-6 s.h.
- 042:295 Advanced Practicum in Integrated Practice 5-6 s.h.

**Summer Session**

- Electives (including preplacement field practice courses) 4-10 s.h.

**Minor**

- 042:293 Advanced Practicum Seminar in Family-Centered Practice I 1 s.h.
- 042:297 Advanced Practicum Seminar in Integrated Practice I 1 s.h.

**Spring Semester**

- Elective 3 s.h.

**One of these:**

- 042:251 Family-Centered Theory and Practice II 3 s.h.
- 042:261 Integrated Social Work Theory and Practice II 3 s.h.

**Minor**

- 042:252 Advanced Social Policy for Family Practice 3 s.h.
- 042:262 Advanced Social Policy for Integrated Practice 3 s.h.

**Concentrations**

In the advanced year of the master’s program, students choose one of two concentrations: family-centered practice or integrated practice. These advanced specialized curricula build on the school’s liberal arts perspective and on the professional foundation. Both are based on a comprehensive eco-systemic theoretical...
perspective, and both apply the principles that are part of the school’s mission statement, with a focus on culturally competent family-centered and community-based approaches.

FAMILY-CENTERED PRACTICE
The family-centered practice concentration teaches specific knowledge and skills necessary for advanced social work practice with individuals and families. These include clinical practice methods that mobilize and develop clients’ coping skills, empowering them to manage difficult situations, and culturally sensitive methods for collaborating with clients, their families, and other professionals in planning interventions. Students also learn about advocating for clients, facilitating client self-advocacy, coordinating services to meet multiple needs, and influencing social policy on behalf of clients.

This concentration is designed to enable students to work with individuals and families at appropriate levels of intensity, mobilize existing strengths, and enhance coping skills. Using principles of family-centered practice, students learn to take community and larger systems into account while working in partnership with individuals and families in all aspects of assessment and intervention planning. The concentration emphasizes sensitivity to a variety of family forms and to cultural diversity within family forms. “Family” is broadly defined to include step families, single-parent families, same-sex-couple families, grandparent-as-parent families, adult parent-adult child families, and traditional forms of families.

INTEGRATED PRACTICE
The integrated practice concentration teaches methods of advanced practice that empower organizational and community change at multiple system levels. Students learn skills for assessment, planning, and direct intervention in larger systems such as neighborhoods, social support networks, service delivery systems as well as policy making. They develop skills for a broad range of interventions, including direct practice, case management, community education, community development and practice, management and administration, organizational and interorganizational planning and program development, team building, organization and program evaluation, and social policy advocacy. They also learn culturally sensitive methods to collaborate with families and communities; identify strengths, assets, and challenges; and develop services and programs that will meet clients’ needs.

Building on strengths and assets of organizations and communities, students learn how to mobilize community members in advocacy and change efforts—skills useful for case managers, service coordinators, supervisors, program planners and developers, and administrators. Students also learn how to apply advanced skills to advocacy, community assessment, planning and mobilizing resources, and influencing social policy.

The concentration prepares students for practice in varied settings, including hospitals and community health programs, schools, mental health centers, neighborhood and family resource centers, community- and family-based community service agencies, correctional facilities, and programs that serve the elderly, both in the community and in care facilities. In many of these settings, social workers work as interdisciplinary team members and team leaders within organizations. They also collaborate with community organizations, community residents, and service providers. Many social workers are involved in staff supervision, program development, and agency administration.

Content areas include grant writing; intervention in multiple systems, including team and network building; policy practice; and design of evaluation methods for client assessment and program evaluation.

M.S.W. via Distance Education
The School of Social Work delivers the M.S.W. curriculum to three off-campus sites: Des Moines, the Quad Cities, and Sioux City. Each site is administered by the School of Social Work in cooperation with the Division of Continuing Education. Social work faculty members teach required courses at each center and are available for student advising. The off-campus programs have been evaluated by the Council on Social Work Education and The University of Iowa Graduate Council as providing a program comparable to that available on the Iowa City campus.

For program entry and application dates, contact the School of Social Work.

DES MOINES CENTER
The Des Moines Graduate Social Work Education Center is located in the state’s largest metropolitan area, in central Iowa. It offers courses sequenced to accommodate both part-time and full-time study. Students may complete the entire degree program at the Des Moines center, although they may travel to Iowa City for selected elective courses offered during the summer.

QUAD CITIES CENTER
The Quad Cities Graduate Center (OCCGC) is located on the campus of Augustana College in Rock Island, Illinois, on the Iowa-Illinois border. The Quad Cities center offers a part-time program for a cohort admitted once every three years. Students at the Quad Cities center can complete their degree entirely off-campus with the exception of some electives, which they can take during summer sessions in Iowa City or at other area colleges and universities. In addition to the part-time cohort students, there are some full- or part-time students from Iowa City serving in practicums in the Quad Cities. Courses in the Quad Cities program are taught by tenure-track, clinical, visiting, and adjunct faculty members on site and via the Iowa Communications Network.

SIOUX CITY CENTER
The Tri-State Graduate Center is located in Sioux City, on Iowa’s western border. The part-time program offered at the Tri-State center is nearly identical to that offered at the Quad Cities center. Courses in Sioux City are taught by tenure-track, clinical, visiting, and adjunct faculty members on site and via the Iowa Communications Network.

Admission
A complete statement of graduate admission policies is available from the School of Social Work. Admission requires the following:

- a bachelor’s degree from an accredited college or university, with a reasonable distribution of courses in the liberal arts and sciences, including the humanities as well as the social, behavioral, and biological sciences;
- competence with word processing and spreadsheet application on personal computers;
- a g.p.a. of 3.00 or higher for the junior and senior years of undergraduate study, or for 12 s.h. of letter-graded graduate course work (exceptions may be granted; consult the School of Social Work);
- a Graduate Record Examination (GRE) General Test score at or near the 50th percentile for the applicant’s reference group;
- three letters of recommendation, including one regarding academic abilities and one from the applicant’s most recent employer (if the employment was social work-related); and
- a personal statement addressing criteria specified by the School of Social Work.

International applicants must score at least 600 on the paper-based Test of English as a Foreign Language (TOEFL) or 250 on the computer-based test.

Applications are accepted beginning September 1 and must be completed by February 1 to be considered for the next academic year.

The School seeks to maintain a heterogeneous student body by enrolling students who represent diverse backgrounds and cultural perspectives. Previous experience in the human services and cross-cultural experiences are desirable.

Financial Support
Students seeking financial assistance should apply for aid through The University of Iowa Office of Student Financial Aid. Students may apply for a limited number of research and teaching assistantships available from the School of Social Work. Application materials for research or teaching assistantships are available from the school each spring, or as positions become available. Aid received through the Office of Student Financial Aid does not preclude students from consideration for aid through the School of Social Work.

Joint Master’s Degrees
The school has formal agreements for joint graduate degrees with the College of Law and the Program in Urban and Regional Planning. To participate, students must apply and be admitted to each program. In each program, up to 12 s.h. earned in one of the disciplines can be applied to requirements of the other, reducing the time it normally would take to pursue the two degrees separately.

Similar arrangements may be made with other departments. Academic units in which social work students have pursued joint degrees include the Tippie College of Business, the College of
Education, the Department of American Studies, the Department of Religious Studies, and the School of Journalism and Mass Communication. Students are encouraged to take courses in other departments whether or not they are pursuing joint degrees.

Cooperative Programs

Graduates of accredited M.S.W. programs may be eligible for associate membership in the American Association of Marriage and Family Therapists (AAMFT) upon fulfilling certain curriculum requirements at the graduate level. Courses are not automatically accepted; graduates need to demonstrate that specific courses meet the AAMFT’s requirements, usually by sending course outlines.

The School of Social Work participates in the aging studies certificate program through the College of Liberal Arts and Sciences. Students can earn the certificate concurrently with the M.S.W. program; they must apply independently to the Aging Studies Program coordinator.

The school cooperates with the College of Education to provide curricula that meet requirements for school social work endorsement in Iowa.

Doctor of Philosophy

The Ph.D. program in social work has three major goals: to train students to conduct research that contributes to the knowledge base of social work; to prepare students as leaders in social work policy and practice with families, children, and the elderly; and to prepare students to teach social work in higher education institutions.

The program focuses on family and emphasizes the well-being of age groups at both ends of the family life cycle: children and the elderly. In a series of required classes and interdisciplinary studies, students develop theoretical, policy, and research skills necessary to advance understanding of children and the elderly within the family context.

This focus is especially appropriate today, when the family as an institution is highlighted in national and state social policy debates. Further, families increasingly are required to care for society’s most vulnerable members, including the chronically ill, the mentally challenged, and the elderly. The program’s focus on children and the elderly within the context of family is unique among the region’s doctoral programs.

Requirements

The Ph.D. requires a total of 90 s.h. Students who enter the program with an M.S.W. are granted credit for 30 s.h. and must complete an additional 60 s.h. for the degree. Students with master’s degrees in related fields may apply to the M.S.W./Ph.D. program. They may be granted credit on a case-by-case basis. Information about the M.S.W./Ph.D. program is available from the School of Social Work.

The Ph.D. program’s semester hour requirement is satisfied through course work, research practicums, and dissertation work.

To become Ph.D. candidates, students must satisfy the program’s course work requirements, pass a comprehensive examination, and write a dissertation and defend it in an oral examination. Each student’s program of study must be approved by the student’s doctoral committee.

Core Courses

All Ph.D. students must complete the following core courses.

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>042:300 Proseminar in Social Work: Social Welfare, Policy Programs</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>042:301 Knowledge Building in Social Work Practice</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>042:302 Knowledge Building in Social Work Policy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>042:303 Research Practicum (taken twice)</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>042:304 Advanced Research Seminar</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>042:305 Social Work Pedagogy: Theory and Practice</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Competency Requirements

Students must demonstrate scholarly competence in four areas. Some may need to take additional course work in order to satisfy the competency requirements.

<table>
<thead>
<tr>
<th>Area</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social work core curriculum (see “Core Courses”)</td>
<td>19 s.h.</td>
</tr>
<tr>
<td>Social work focal area (children and families, or elderly and families)</td>
<td>8-9 s.h.</td>
</tr>
<tr>
<td>Minor in an outside discipline (psychology, sociology, or health management policy)</td>
<td>12 s.h.</td>
</tr>
<tr>
<td>Research methods, statistics, and data analysis (not included above)</td>
<td>9 s.h.</td>
</tr>
</tbody>
</table>

Admission

Students are admitted only for full-time study. To qualify for admission, applicants ordinarily must have a master’s degree in social work from a program accredited by the Council on Social Work Education (CSWE). Individuals with master’s degrees in related fields also may be eligible for admission. Prospective students also may apply to the M.S.W./Ph.D. program.

The school makes special efforts to recruit students from underrepresented minorities, especially Iowa residents. The program accepts four to five students each year.

All applicants should have an undergraduate g.p.a. of at least 3.00 and a composite Graduate Record Examination score of at least 1100 (verbal and quantitative) or an average of 550 on all three sections of the exam (verbal, quantitative, and analytical). All applicants must submit a completed Graduate College Application form, undergraduate and graduate transcripts, Graduate Record Examination scores, TOEFL scores (for international students), a personal statement of professional goals, including area of interest and reason for pursuing the Ph.D. (two to three pages), a résumé, a sample of scholarly writing (scholarly publication or research or theoretical term paper), and four letters of recommendation (two must be academic references). Applicants must submit the application form, fee, and other materials to the Graduate Admissions Office. An application packet and list of guidelines are available from the office. Materials must be submitted no later than February 1 of the year for which admission is sought.

Financial Support

All doctoral students are guaranteed financial support for two years of the program. This support consists of research assistantships, teaching assistantships, or fellowships. Graduate assistants also are eligible for tuition scholarships, and students who hold assistantships of one-quarter time or more may pay resident tuition.

Special Projects and Travel/Study Seminars

Students may become involved in special projects such as the National Resource Center on Family-Centered Practice and the School of Social Work gerontology end-of-life care programs. The school also offers students the opportunity to participate in travel/study seminars. Urban, rural, national, and international seminars are available.

Continuing Education

Nondegree students may enroll for selected courses and workshops through Saturday & Evening Classes in Iowa City and the School of Social Work’s off-campus programs. There are limits on the amount of graduate course work that may be applied to the master’s requirements for students who later enroll in the program.

Courses

Primarily for Undergraduates

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>042:022 Introduction to Social Work</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>Social welfare as a social institution; settings, methodologies of social work, practice, profession of social work; historical development of American social welfare, social work; a minimum of 45 hours volunteer work. Prerequisite: sophomore or higher standing or consent of instructor. Same as 034:022.</td>
<td></td>
</tr>
<tr>
<td>042:029 First-Year Seminar</td>
<td>1-2 s.h.</td>
</tr>
<tr>
<td>Small discussion class taught by a faculty member; topics chosen by instructor, may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first or second-semester standing.</td>
<td></td>
</tr>
<tr>
<td>042:042 Intercultural Communication</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Same as 036:042.</td>
<td></td>
</tr>
<tr>
<td>042:141 Fundamentals of Social Work Practice</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Professional practice: functions, roles, skills, conceptual frameworks, values, ethics; focus on integrative approach to practice, including assessment, intervention, evaluation of interventions; termination with individuals, families, groups, emphasis on empirically based practice. Prerequisite: admission to B.A. program in social work. Corequisites: 042:140 and 042:141.</td>
<td></td>
</tr>
<tr>
<td>042:142 Interpersonal Skills Laboratory</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>Practice of interpersonal skills required in the helping relationship. Prerequisite: admission to B.A. program in social work. Pre- or corequisites: 042:141.</td>
<td></td>
</tr>
<tr>
<td>042:144 Introduction to Social Work Research</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>
| Scientific approach to knowledge building, with emphasis on critical use of research, quantitative and qualitative methods, evaluation of practice, computerized data analysis, ethics and
### For Undergraduate and Graduate Students

*Courses with numbers preceded by asterisks are required for the M.S.W. program.*

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>042:108</td>
<td>Basic Aspects of Aging</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>042:112</td>
<td>Human Sexuality</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>042:177</td>
<td>Improving Outcomes for People with Disabilities</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>042:180</td>
<td>Substance Use and Abuse</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>042:191</td>
<td>Family Development</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>042:192</td>
<td>Behavior in the Social Environment</td>
<td>3-4 s.h.</td>
</tr>
<tr>
<td>042:193</td>
<td>Social Welfare Policy and Practice</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>042:194</td>
<td>Discrimination, Oppression, and Diversity</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>042:195</td>
<td>Social Policy and the Elderly</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>042:196</td>
<td>Family Violence</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>042:197</td>
<td>Social Work Practice with Individuals</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>042:198</td>
<td>Social Work Practice with Groups</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>042:199</td>
<td>Social Work Practice with Families</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>042:200</td>
<td>Human Services Administration</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>042:201</td>
<td>Individual and Family Development: Life Span</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>042:202</td>
<td>Group Leadership in Human Sexuality</td>
<td>0-3 s.h.</td>
</tr>
<tr>
<td>042:203</td>
<td>Aging and the Family</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>042:204</td>
<td>Social Policy Issues in Health Care</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>042:205</td>
<td>Cross-Cultural Social Work</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>042:206</td>
<td>Social Work Research</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>042:207</td>
<td>Social Work Research Methods</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>042:208</td>
<td>Social Work Process Skills Laboratory</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>042:209</td>
<td>Social Work Process Skills Laboratory</td>
<td>1 s.h.</td>
</tr>
</tbody>
</table>

**Primarily for Graduate Students**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>042:145</td>
<td>Organization and Community Practice</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>042:146</td>
<td>Microcomputer Laboratory</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>042:147</td>
<td>Social Work Research Methods</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>042:148</td>
<td>Social Work Process Skills Laboratory</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>042:149</td>
<td>Social Work Process Skills Laboratory</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>042:150</td>
<td>Social Work Process Skills Laboratory</td>
<td>1 s.h.</td>
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<tr>
<td>042:151</td>
<td>Social Work Process Skills Laboratory</td>
<td>1 s.h.</td>
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<tr>
<td>042:152</td>
<td>Survey Gerontological Programs Services</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>042:153</td>
<td>Survey Gerontological Programs Services</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>042:154</td>
<td>Survey Gerontological Programs Services</td>
<td>3 s.h.</td>
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</table>

**For Graduate Students Only**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>042:189</td>
<td>Field Experience Seminar</td>
<td>1 s.h.</td>
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<tr>
<td>042:190</td>
<td>Field Work in Gerontology</td>
<td>arr.</td>
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<tr>
<td>042:191</td>
<td>Individual Study</td>
<td>arr.</td>
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<tr>
<td>042:192</td>
<td>Honors in Social Work</td>
<td>arr.</td>
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<tr>
<td>042:193</td>
<td>Field Experience</td>
<td>arr.</td>
</tr>
<tr>
<td>042:194</td>
<td>Social Work Practice in Health Care Settings</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>042:195</td>
<td>Introduction to Nursing Homes</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>042:196</td>
<td>Social Work Practice with Developmentally Disabled</td>
<td>2 s.h.</td>
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<tr>
<td>042:197</td>
<td>Social Work Practice with Disabilities</td>
<td>3 s.h.</td>
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<tr>
<td>042:198</td>
<td>Social Work Practice with Disabilities</td>
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<td>042:199</td>
<td>Social Work Practice with Disabilities</td>
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<tr>
<td>042:200</td>
<td>Social Work Practice with Disabilities</td>
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<tr>
<td>042:201</td>
<td>Individual and Family Development: Life Span</td>
<td>3 s.h.</td>
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<tr>
<td>042:202</td>
<td>Group Leadership in Human Sexuality</td>
<td>0-3 s.h.</td>
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<tr>
<td>042:203</td>
<td>Aging and the Family</td>
<td>2-3 s.h.</td>
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<tr>
<td>042:204</td>
<td>Social Policy Issues in Health Care</td>
<td>3 s.h.</td>
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<td>042:205</td>
<td>Cross-Cultural Social Work</td>
<td>2-3 s.h.</td>
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<td>042:206</td>
<td>Social Work Research</td>
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<tr>
<td>042:207</td>
<td>Social Work Research Methods</td>
<td>3 s.h.</td>
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<tr>
<td>042:208</td>
<td>Social Work Process Skills Laboratory</td>
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<tr>
<td>042:209</td>
<td>Social Work Process Skills Laboratory</td>
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**For all Students**

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<th>Course Code</th>
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<tr>
<td>042:140</td>
<td>Social Work Practice and Skills</td>
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<tr>
<td>042:141</td>
<td>Social Work Practice and Skills</td>
<td>3 s.h.</td>
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<td>042:142</td>
<td>Social Work Practice and Skills</td>
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<tr>
<td>042:143</td>
<td>Social Work Practice and Skills</td>
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<tr>
<td>042:144</td>
<td>Social Work Practice and Skills</td>
<td>3 s.h.</td>
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<tr>
<td>042:145</td>
<td>Organization and Community Practice</td>
<td>3 s.h.</td>
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<tr>
<td>042:146</td>
<td>Microcomputer Laboratory</td>
<td>1 s.h.</td>
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<tr>
<td>042:147</td>
<td>Social Work Research Methods</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>042:148</td>
<td>Social Work Process Skills Laboratory</td>
<td>1 s.h.</td>
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<tr>
<td>042:149</td>
<td>Social Work Process Skills Laboratory</td>
<td>1 s.h.</td>
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<td>042:150</td>
<td>Social Work Process Skills Laboratory</td>
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<td>042:151</td>
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<td>Survey Gerontological Programs Services</td>
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<td>042:153</td>
<td>Survey Gerontological Programs Services</td>
<td>3 s.h.</td>
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</table>

**Additional Notes**

- Prerequisites are admission to B.A. in social work or M.S.W. program or consent of instructor.
- Corequisites and pre-requisites are provided where applicable.
- Course availability and instructor vary by semester and academic year.
of adolescence, social services for families and children, legal issues. Prerequisite: completion of foundation courses or consent of instructor.

042:238 Introduction to Play Therapy 2 s.h.
Major theories and techniques of play therapy, relevance to social work practice. Prerequisite: 042:150 or consent of instructor.

042:247 Nonprofit Organizational Effectiveness I 3 s.h.

042:248 Nonprofit Organizational Effectiveness II 3 s.h.

042:250 Family-Centered Theory and Practice I 3 s.h.
Theor etical foundation for family-centered practice; comparison and analysis; skill development in analyzing problem situations; implementing change strategies. Prerequisite: completion of M.S.W. foundation courses or consent of instructor.

042:251 Family-Centered Theory and Practice II 3 s.h.
Techniques for assessment, intervention in family-centered practice, evaluation of practice; theoretical and clinical bases for intervention. Prerequisite: 042:250 or consent of instructor.

042:252 Advanced Social Policy for Family Practice 3 s.h.
Systematic basis for examining social, economic, and political factors that influence formation of social policies; social policy implementation; impact of social policies on vulnerable individuals and families. Prerequisite: completion of M.S.W. foundation courses or consent of instructor.

042:254 Introductory Seminar: End-of-Life Services in Rural Communities 2-3 s.h.
Basic concepts of palliative care, rural service delivery, community assessment.

042:255 Integrative Seminar in End-of-Life Care 1 s.h.
Integration of students’ knowledge, skills, and values for practice in end-of-life care and bereavement; application to case studies and advanced practicum setting. Prerequisite: admission to end-of-life care area. Corequisite: 042:292 or 042:295.

042:260 Integrated Social Work Theory and Practice I 3 s.h.
Theor etical foundations, evaluation, ethical issues in integrated social work practice; intermediate group work for culturally competent intervention; small task groups. Prerequisite: completion of foundation courses or consent of instructor.

042:261 Integrated Social Work Theory and Practice II 3 s.h.
Continuation of 042:260; theories, evaluation, ethical issues; advanced group work for culturally competent intervention; case management, program development, funding evaluation, large task groups. Prerequisite: 042:260.

042:262 Advanced Social Policy for Integrated Practice 3 s.h.
Systematic basis for critical examination of social, economic, and political factors that influence formation of social policies; social policy implementation; impact of social policies on vulnerable populations, service providers, communities. Prerequisite: completion of M.S.W. foundation courses or consent of instructor.

042:270 Advanced Research 2 s.h.
Research project relevant to social work practice that builds on knowledge and skills developed in 042:148; data analysis, report of results; ethical principles applied to research. Prerequisites: admission to M.S.W. program, and 042:148 or consent of instructor.

042:271 Individual Study arr.
Project related to student interest; directed by faculty member.

042:272 Thesis arr.

042:275 Development Policy and Planning in the Third World 3 s.h.
Cultural, interdisciplinary analysis of urbanization and development problems in developing nations. Same as 078:275, 034:275, 044:275, 102:275, 113:275.

042:278 Personnel and Financial Management 2 s.h.
Human, financial resources required by communities and organizations for delivery of social services; skill development in personnel and financial management, microcomputer applications, evaluation of management outcomes. Prerequisite: completion of foundation courses or consent of instructor.

042:280 Human Behavior: Selected Aspects Repeatable.

042:281 Social Work Practice: Selected Aspects Repeatable.
Undergraduate students majoring in sociology may pursue either the Bachelor of Arts or the Bachelor of Science. Students interested in graduate degrees, postgraduate study, or professional careers in the social sciences are advised to seek the Bachelor of Science.

In addition to the specific courses required for each bachelor’s degree, both B.A. and B.S. majors are advised to take 6 s.h. of course work in at least one of these departments: anthropology, economics, geography, political science, or psychology.

Departmental requirements are the same for transfer students as for others. The department requires that transfer students majoring in sociology take at least 12 s.h. in sociology at The University of Iowa. Students must have their transferred courses approved by a sociology adviser for credit in the major.

Students who wish to obtain teacher licensure in the social sciences while majoring in sociology should contact the Division of Curriculum and Instruction in the College of Education.

**Bachelor of Arts**

The B.A. program requires a minimum of 33 s.h. of course work. Several courses required for the major have specific course prerequisites, and in some cases, students must earn a minimum grade in a prerequisite course. In planning to complete the major, students must be careful to take courses in the proper sequence.

The following courses cannot be used to complete requirements of the major: 034:029, 034:029, 034:197, and 034:198.

**First-Year Seminar, 034:197 Teaching Internship, and 034:198 Directed Individual Study.**

**INTRODUCTORY COURSES**

These courses should be taken early, to lay the foundation for all other work in the major.

- 034:001 Introduction to Sociology: Principles 3-4 s.h.
- 22M:009 Elementary Functions (or a higher-level mathematics course) 3-4 s.h.

**THEORY AND METHODS COURSES**

These courses should be completed as early as possible. The college-level mathematics course is a prerequisite for 034:010, and students must earn at least a grade of C in both courses in order to complete the major. Students must take 034:009 and 034:010 before enrolling in 034:011.


**THE MAJOR PORTFOLIO**

When they graduate, each student is required to provide the department with a group of documents that will compose the student’s Sociology Major Portfolio. The portfolio provides students with a record of their development in the department. It also is an attractive set of materials that can serve as evidence of interests and work for prospective employers and graduate schools.

The portfolio should include at least three documents: a paper from the first two years of classes in sociology, such as a book review or statement comparing competing theories; a research paper that reports the findings of original research; and a statement summarizing an experience in which the student applied the sociological knowledge, such as a report on an internship, a consideration of contributions that sociological information made to a summer job, or a reflection on a period of study abroad.

Together, the materials should display development toward technical correctness in citing others’ work, accurate use of sociological concepts, technical proficiency in using research methods, and the ability to explain implications of research findings.

**Bachelor of Science**

The B.S. program prepares students for graduate training in sociology. It requires a minimum of 45 s.h., with at least 30 s.h. in sociology. Several courses required for the major have specific course prerequisites, and in some cases, students must earn a minimum grade in a prerequisite course. In planning to complete the major, students must be careful to take courses in the proper sequence.

Several courses offered by the department cannot be used to complete the requirements of the major, including 034:029 First-Year Seminar, 034:197 Teaching Internship, and 034:198 Directed Individual Study.

**INTRODUCTORY COURSES**

These courses should be taken early, to lay the foundation for all other work in the major.

- 034:009 Introduction to Sociology: Principles 3-4 s.h.
- 034:010 Quantitative Data Analysis 3 s.h.
- 034:011 Theory, Research, and Statistics 3 s.h.
- 22S:120 Probability and Statistics 4 s.h.
- 034:026:103 Introduction to Symbolic Logic 3 s.h.
- 034:026:104 Introduction to Philosophy of Science 3 s.h.
- 026:104 Introduction to Philosophy of Science 3 s.h.

**ELECTIVES**

Students complete 15 s.h. of elective course work in sociology, chosen from all the courses offered by the department (except 034:029, 034:197, and 034:198). Two of the electives must be taken after completing 034:011 (except 034:002, 034:029, 034:197, and 034:198).

**CAPSTONE COURSE**

This special project illustrates the student’s accomplishments in the major. It is taken during the student’s last semester of major course work.

In order to enroll in the capstone course, students must complete 034:011 with a grade of C or higher.

- 034:195 Capstone Course in Sociology 3 s.h.

**THE MAJOR PORTFOLIO**

When they graduate, each student is required to provide the department with a group of documents that will compose the student’s Sociology Major Portfolio. The portfolio provides students with a record of their development in the department. It also is an attractive set of materials that can serve as evidence of interests and work for prospective employers and graduate schools.

The portfolio should include at least three documents: a paper from the first two years of classes in sociology, such as a book review or statement comparing competing theories; a research paper that reports the findings of original research; and a statement summarizing an experience in which the student applied sociological knowledge, such as a report on an internship, a consideration of contributions that sociological information made to a summer job, or a reflection on a period of study abroad.

Together, the materials should display development toward technical correctness in citing others’ work, accurate use of sociological concepts, technical proficiency in using research methods, and the ability to explain implications of research findings.

**Four-Year Graduation Plan**

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

**Note:** Sequencing of course work is important to meeting the four-year plan.
Bachelor of Arts

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

Before the fifth semester begins: 034:001 or equivalent, and at least half of the semester hours required for graduation

Before the seventh semester begins: a college-level math course numbered 22M:009 or above, 034:009, 034:010, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: 034:011 and two electives in the major

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

Bachelor of Science

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

Before the fifth semester begins: 034:001 or equivalent, 034:009, one sociology elective, and at least half of the semester hours required to graduate

Before the seventh semester begins: 034:010 or equivalent, 034:011, calculus I-II, one more sociology elective, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: 22S:120 and two more courses in the major

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

Honors

The University Honors Program provides a stimulating and integrative educational experience for undergraduates who perform at a high level. Honors students must maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information).

To qualify for the honors program in sociology, students must have a cumulative University of Iowa g.p.a. of at least 3.33 and a g.p.a. of at least 3.33 in the major in sociology courses.

To earn a degree with honors in sociology, students complete 034:100 Honors Proseminar in the spring semester of the junior year, one advanced undergraduate course or graduate course approved by the honors director, and a senior honors project. The honors project gives students an opportunity to do sociological research in consultation with a faculty member of the student’s choice.

National Honor Society

The department sponsors a chapter of Alpha Kappa Delta International Sociological Honor Society. Students who have a g.p.a. of 3.00 or higher in sociology course work and overall, with junior standing or higher, are considered for membership. Consult the faculty Alpha Kappa Delta adviser for more information.

Minor

In addition to its programs for majors, the department provides supporting course work and several course clusters of value to undergraduate students who want to combine a minor in sociology with a major in another field, particularly other social sciences, business, elementary education, or nursing. Requirements for the minor include a minimum of 15 s.h. of credit in sociology courses with a g.p.a. of 2.00 or higher; 12 of the 15 s.h. must be taken at The University of Iowa. The minor must include 034:009. No course accepted toward the minor may be taken pass/nonpass.

Graduate Programs

The graduate programs in sociology prepare students for professional and academic careers. Master's degree students can choose between programs that prepare them for doctoral studies or for professional positions applying sociology. The doctoral program has a research emphasis and primarily prepares sociologists for positions in colleges and universities or research positions in academic, private, and government institutions. Opportunities for research using survey, experimental, and observational methods are readily available in the department.

Master of Arts

The M.A. requires 30 s.h. with a thesis or research paper, or 38 s.h. without. The program without a thesis is intended for students seeking a terminal degree and for whom a wider range of course content in sociology is appropriate.

All candidates for the M.A. must complete the following with grades of B or higher:

- 034:201 History of Sociological Theory 3 s.h.
- 034:214 Introduction to Sociological Data Analysis 3 s.h.
- 034:215 Sampling, Measurement, and Observation Techniques 3 s.h.
- 034:216 Linear Models in Sociological Research 3 s.h.

Joint Program in Sociology and Law

Students may obtain a Master of Arts in sociology and a Juris Doctor by fulfilling the basic requirements of both programs. They may apply up to 12 s.h. of graduate credit, earned to satisfy the requirements of either degree, toward both the M.A. in sociology and the 90 s.h. required for the J.D.

This cross crediting, approved at the discretion of the Department of Sociology and/or the College of Law, allows students to receive the J.D. and the M.A. by taking less course work than would be necessary if the two degrees were pursued independently. This program is highly individualized, allowing students to explore various aspects of the relationship between law and society.

Doctor of Philosophy

The Ph.D. degree in sociology requires a minimum of 72 s.h. of graduate-level course work, including the post-M.A. course 034:218 Advanced Statistical Modeling of Data, 3 s.h. of elective course work in methods/statistics, and 3 s.h. of elective course work in theory. Most of the course work for the Ph.D. is taken in the student's two areas of interest. Candidates also must pass two comprehensive examinations and must write and successfully defend a dissertation.

Doctoral students take two comprehensive exams—one from list A, the other from list A, B, or C (list A has six standing committees, list B has two, as follows):

- List A: social psychology; crime, law, and deviance; stratification; political sociology; organizations; and family
- List B: theory, and methods
- List C: an area not included in list A or B for which the student can identify an examining committee of three people, with both the area and the committee approved by the graduate committee

A detailed statement of regulations for graduate study is available upon request. Prospective doctoral candidates should examine this statement carefully.

Training for Teaching Assistants

All new students are expected to attend a three-day orientation for teaching assistants before the beginning of classes. In addition, a seminar on teaching pedagogy (034:382) is required for those who wish to teach their own courses.

Admission

Admission to graduate study in sociology usually requires an undergraduate g.p.a. of at least 3.25 and a total score of 1100 from the quantitative plus verbal sections of the Graduate Record Examination (GRE) General Test. International students whose native language is not English should submit scores from the TOEFL exam. In addition to fulfilling the Graduate College requirements for admission (see the Manual of Rules and Regulations of the Graduate College in the Graduate College section of the Catalogi), applicants must complete a sociology department application statement and use the department's personal reference forms in obtaining three letters of recommendation.

All application materials for fall admission must be received by January 1. The deadline for applying for departmental financial support is January 1. Evaluation of applications begins in early January.

Admission decisions are based on consideration of prior academic performance, personal reference letters, scores on the GRE General Test, and the applicant's statement of reasons for pursuing advanced work in sociology at The University of Iowa. The department has no specific undergraduate course requirements for admission, but a background in the social sciences (particularly other social sciences, business, elementary education, or nursing) is highly encouraged.
sciences with some mathematical training is useful. A foreign language is not required for admission and there are no foreign language requirements for either the M.A. or Ph.D. in sociology. Inquiries concerning admission should be directed to the chair of the admissions committee, Department of Sociology.

Financial Support
The Department of Sociology offers four types of awards to graduate students: teaching assistantships, research assistantships, University of Iowa Presidential Fellowships, and Graduate Merit Fellowships. Out-of-state students who receive awards are charged resident tuition. Students who receive one-half-time teaching or research assistantships work 20 hours each week for faculty members on either teaching or research assignments.

Research Centers and Facilities

Center for the Study of Group Processes
The department’s 18-room small-group laboratory includes eight computer-controlled subject rooms with audiovisual and psychophysiological recording capabilities, two large-group rooms with an adjoining observation room, an audiovisual control room, a sociophysiological instrumentation lab, a virtual social environment lab, and other flexible research office spaces.

Center for Criminology and Sociological Studies
This center is developing an interdisciplinary research and teaching program for the study of crime, law, deviance, social control, and mental health. It sponsors a colloquium series in crime, law, and social control, in which affiliates, graduate students, and outside speakers present their ongoing research, and a working-paper series in which members disseminate research papers to the academic community. The center also provides research support and a research infrastructure for faculty and graduate students and offers graduate research assistantships for interested students. The course 034:148 Internship in Criminal Justice and Corrections is administered through the center.

Center for Asian and Pacific Studies
This center provides excellent opportunities for studying Asia from a social science perspective. It supports related Asia studies and offers a monthly seminar that features lively discussions by scholars from many different disciplines. Several sociology faculty members are affiliated with the center.

Computer Facilities
The department operates a remote computer terminal and a personal computer cluster for graduate students. Both terminals and personal computers can access mainframe computers that provide all of the important statistical and mathematical computing programs.

Courses

For Undergraduates
The following courses are open only to undergraduates. Courses without prerequisites open to first-year students are 034:001, 034:002, 034:020, 034:029, 034:066, 034:154, and 034:158. All other undergraduate courses are open to first-year students with stated prerequisites.

034:001 Introduction to Sociology: Principles 3-4 s.h.
How individuals are organized into social groups, ranging from intimate groups to bureaucracies, and how these influence individual behavior; nature and interrelationships of basic social institutions, such as family, education, religion, economy, GE: social sciences.

034:002 Social Problems 3-4 s.h.
Emergence and distribution of selected social problems; alternative solutions; may include population, inequality, female-male relationships, racism, crime. GE: social sciences.

034:009 Sociological Theory 3 s.h.
Theoretical perspectives in sociology; construction, evaluation of sociological explanations. Prerequisite: 034:001 or consent of instructor.

034:010 Quantitative Data Analysis 3 s.h.
Applied statistics for sociology majors: frequency distributions, graphic presentation, measures of central tendency, measures of variability, elementary probability, populations and samples, sampling distributions, estimation and confidence intervals, hypothesis testing, chi-square test, regression and correlation, analysis of variance; computer software used in data analysis; emphasis on appropriate use and interpretation of statistics in the study of sociological topics. Prerequisites: sociology major or consent of instructor; 034:001; 22M:009 or 22M:010 or 22M:011 or 22M:021 or a higher-level calculus course; and a grade of C or higher in 034:009.

034:011 Theory, Research, and Statistics 3 s.h.
Basic scientific concepts; emphasis on theoretical thinking, statement of researchable propositions, logic and meaning of proof operator in the research process; general issues in designing social research, including problems of sampling and measurement, analysis, presenting research data, interpreting research findings. Prerequisites: sociology major or consent of instructor, and a grade of C or higher in 034:009 and 034:010.

034:020 First-Year Seminar 1-2 s.h.
Small discussion class taught by a faculty member, topics chosen by instructor, may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisites: first- or second-semester standing.

034:100 Honors Proseminar 2 s.h.
Topic development for senior honors projects. Offered spring semesters. Prerequisite: honors standing in sociology.

034:190 Selected Topics in Sociology 3 s.h.
Topics vary.

034:195 Capstone Course in Sociology 3 s.h.
Senior project illustrating student's accomplishments over his or her undergraduate career; prepared in collaboration with sociology faculty member or other experts in the student's area of sociological interest; record for student's own reflection, information for potential employers and graduate programs. Prerequisite: grade of C or higher in 034:011.

034:196 Field Experience 3 s.h.
Supervised field experience in sociology; primarily for students participating in Washington Center internship. Prerequisites: sociology major, junior standing, and consent of advisor.

034:197 Teaching Internship 3 s.h.
Experience providing supervised support for instructors teaching basic courses in sociology. Prerequisites: appointment as undergraduate teaching aide in sociology and consent of instructor.

034:198 Directed Individual Study 3 s.h.
Research project under faculty supervision. Prerequisite: consent of instructor.

034:199 Honors Research 3 s.h.
Research project under faculty supervision. Prerequisite: consent of instructor.

Advanced Courses

Social Theory

034:200 Graduate Proseminar 1-2 s.h.
General introduction to department and discipline for entering graduate students; departmental and graduate college requirements, program and career planning, interaction with faculty members, consideration of student interests and concerns. Two semesters beginning in fall.

034:201 History of Sociological Theory 3 s.h.
Ideas of major 19th and 20th-century social thinkers (e.g., Marx, Weber, Durkheim, Simmel, Marx). This course is typically offered each fall.

034:202 Theory Construction and Analysis 3 s.h.
Contemporary theoretical issues and nature of theory, theory's place in research, strategies of theory construction.

034:203 Seminar: Selected Topics in Sociological Theory 3 s.h.
Repeatable.

034:214 Introduction to Sociological Data Analysis 3 s.h.
Statistical measures for descriptive methods and association; logic of statistical inference, hypothesis testing; background essential to understanding linear models, models for categorical data analysis. Prerequisite: introductory statistics or consent of instructor.

034:215 Sampling, Measurement, and Observation Techniques 3 s.h.
Research designs; sampling designs and techniques; questionnaire construction, interview techniques; participant and nonparticipant observation; coding and preparation of data for analysis; measurement techniques, reliability, and validity. Prerequisite: 034:214 or consent of instructor.

034:216 Linear Models in Sociological Research 3 s.h.
Statistical techniques associated with general linear model; emphasis on multiple regression, its generalizations, corresponding computer programs. Prerequisite: 034:214 or consent of instructor.

034:217 Advanced Sociological Data Analysis 3 s.h.
Advanced statistics, including categorical data analysis, event history analysis, structural equation modeling, time series analysis, network analysis. Repeatable. Prerequisites: 034:214, 034:215, and 034:216; or consent of instructor.

034:218 Advanced Statistical Modeling of Data 3 s.h.
Models for analysis of categorical data, including logistic, logit, related discrete data models. Prerequisites: advanced graduate standing and consent of instructor.

034:219 Seminar: Selected Topics in Research Methods and Data Analysis 3 s.h.
Repeatable.

Social Psychology

034:020 Principles of Social Psychology 3-4 s.h.
Introduction to theory and research in small groups, interpersonal and intergroup processes. GE: social sciences.

034:122 The Paranormal Society 3 s.h.

034:126 Collective Behavior and Social Movements 3 s.h.
Social unrest, crowd behavior, social movements treated as a form of social change. Prerequisite: 034:001 or 034:002 or consent of instructor.

034:220 Contemporary Approaches to Social Psychology 3 s.h.
Review and critical analysis of current theoretical approaches to and systems of social psychological analysis.

034:221 Seminar: Selected Topics in Social Psychology 3 s.h.
Selected theoretical and methodological issues. Repeatable.

034:291 Seminar: Collective Action and Social Movements 3 s.h.
Comparative, historical analysis of variations in social movements, their impact on social change.
Deviance, Delinquency, Crime, and Law

034:040 Criminology 3 s.h.
Nature and causes of crime; the criminal justice process, correctional treatment, crime prevention. Prerequisite: 034:001 or consent of instructor.

034:141 Juvenile Delinquency 3 s.h.
Delinquency as an individual and social problem; theories of the causes of juvenile delinquency; law enforcement and the juvenile court; methods of control and prevention. Prerequisite: 034:001 or consent of instructor.

034:146 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: 034:040 or 034:141 or consent of instructor.

034:148 Internship in Criminal Justice and Corrections 1-4 s.h.
Supervised field work in a criminal justice or correctional agency. Prerequisites: sociology major, junior standing, 034:040 or 034:141, and consent of director of the Center for Criminology and Socio-Legal Studies.

034:149 Sociology of Criminal Punishment 3 s.h.
Sociological theories and research on criminal punishment: classical and contemporary theories; research on imprisonment and capital punishment. Prerequisite: 034:009.

034:182 Sociology of Law 3 s.h.
Conceptual, historical, and theoretical issues of law and operation of the criminal justice system; theory and research on law and the criminal justice system. Prerequisite: 034:002.

034:186 Criminal Legal System 3 s.h.
Discretionary decision-making in the U.S. criminal courts, from arrest through sentencing; legal and sociological issues relevant to each stage of felony adjudication; sociological and social psychological theories of decision making in adjudication; empirical research on traditional theories. Prerequisite: 034:001 or 034:002 or consent of instructor.

034:204 Seminar: Criminological Theories 3 s.h.
Theories of crime causation and their relationships to the cultures in which they have functioned.

034:244 Seminar: Selected Topics in Deviance and Control 3 s.h.
Critical analysis of current research; emphasis on theoretical contributions and methodological foundations. Repeatable.

Family, Life-Style, Children, Aging

034:018 Women and Society 3-4 s.h.
Role and status of women in society; sex differences, sex role socialization, theories about origin and maintenance of sexual inequalities, changes in social life cycle of women, implications for social institutions and processes; focus on contemporary United States. GE: cultural diversity. Prerequisite: 034:001. Same as 131:018.

034:061 The American Family 3 s.h.
Structure and process; change over the life cycle; interrelations with other institutions; historical changes; variations by social class and ethnic group. Prerequisite: 034:001.

034:134 Aging in Comparative Perspective 3 s.h.
Sociological foundations of world variation in aging; relationships between political and economic institutions of various societies, their treatment of the aging process. Prerequisite: 034:001 or 034:061 or consent of instructor. Same as 153:134.

034:159 Families in Comparative Perspective 3 s.h.
Family systems in comparative and historical perspective; comparison of the American family with families in both modern and premodern societies. Prerequisite: 034:001 or 034:061.

034:162 Work and Family Institutions 3 s.h.
Contemporary problems in the integration of work and family life; origins of work-family conflict in process of industrialization; effect of job-family conflict on mothers, fathers, children; cross-cultural differences in dealing with work-family conflict. Prerequisite: 034:001 or 034:002 or consent of instructor. Same as 131:160.

034:266 Changing Families and Public Policy 3 s.h.
Current sociological research on public policies that affect family life and well-being; divorce and child custody policies, teen pregnancy and abortion, family poverty; child care and work/family policies. Same as 131:266.

034:269 Seminar: Selected Topics in Family Sociology 3 s.h.
Selected theoretical and methodological issues. Repeatable. Prerequisite: graduate standing in a social science or consent of instructor.

Social Institutions, Social Change

034:022 Introduction to Social Work 4 s.h.
Social welfare as a social institution; settings and methodologies of social work practice; profession of social work; historical development of American social welfare and social work; minimum of 60 hours volunteer work. Prerequisite: sophomore standing or consent of instructor. 042:022.

034:151 Sociology of the Third World 3 s.h.
Analysis and measurement of development/underdevelopment; ideological perspectives on the Third World; the modern world system; selected issues in the study of social change in Asia, the Mideast, Latin America, Africa. Prerequisite: 034:001 or an introductory course in economics or anthropology or consent of instructor. Same as 113:151.

034:153 Public Opinion 3 s.h.
Role of public opinion in making public policy; formation and change of political attitudes and opinion; public ideology; measurement of public opinion; understanding opinion polls. Prerequisite: 034:001 or consent of instructor. Same as 131:171.

034:154 Society and Politics in East Asia 3 s.h.
Japan, China, South and North Korea, Taiwan, major theoretical issues in social change and development through East Asian experiences in the modern era.

034:160 American Society 3 s.h.
American society in comparative perspective, its structure and integration; approaches to study of large, complex modern societies; institutional interrelationships, institutions as agencies of social control, informal and formal organization as an effect of social change. Prerequisite: 034:001 or consent of instructor.

034:163 Comparative Sociology 3 s.h.
Comparison of different societies or nations; focus on competing analyses of a selected topic (e.g., the rise of capitalism). Prerequisite: 034:001 or consent of instructor.

034:181 Sociology of Popular Culture 3 s.h.
Analysis of the sociological bases, impact, and implications of popular culture; interrelationships of popular culture and major social institutions; popular culture and social change; social bases of taste; cultures and publics. Prerequisite: 034:001 or consent of instructor.

034:275 Development Policy and Planning in the Third World 3 s.h.
Cross-cultural and interdisciplinary analysis of problems associated with urbanization and development in the developing nations. Prerequisite: graduate standing in a social science. Same as 078:275, 042:275, 044:275, 102:275, 113:275.

034:310 Education and Social Change 2-3 s.h.
Role of educational institutions, in connection with political and economic structures, in social change; illumination of theories of social change through case studies of educational systems in less developed nations. Same as 078:210.

Social Class, Inequality, Race, Organizations, Politics

034:060 Social Inequality 3 s.h.
Major theoretical perspectives for understanding inequality in economics, power, prestige; the magnitude of social inequality in the United States; sex and race inequality; trends in and causes of social mobility; selected consequences of inequality. GE: cultural diversity.

034:135 Sociology of Sexuality 3 s.h.
Sociological perspectives on sexuality, including theoretical and conceptual developments, empirical regularities, and social implications; sexual expression in the United States. Prerequisites: 034:001 or 034:002 or consent of instructor.

034:150 Political Sociology 3 s.h.
Sociological analysis of political behavior and belief, group conflict and political process; group consensus, political institutions, power and policy making, relationship of the political system to the social system. Prerequisite: 034:001 or consent of instructor.

034:155 Sociology of Race and Ethnicity 3 s.h.
Multidisciplinary study of group relations, with emphasis on historical, sociological, and social psychological issues in the study of American minority groups. Prerequisite: 034:001 or 113:003 or consent of instructor.

034:158 Economy and Society 3 s.h.
Economic debates that faced advanced market economies in the 20th century with extensions to the developing world; development and maintenance of investment elites and labor markets, development and extension of state authority.

034:164 Organizations and Modern Society 3 s.h.
Approaches to the sociological study of economic and noneconomic organizations; the role of power and authority within the organization, and between the organization and its environment. Prerequisite: 034:001 or 034:020 or consent of instructor.

034:165 Sociology of Work and Occupations 3 s.h.
Work commitment; prestige of occupations; occupational and professional careers; occupational groups and organizations; alienation; women, minorities, and occupational structures; capitalism and occupations. Prerequisite: 034:001 or 034:020 or consent of instructor.

034:175 Community and Urban Sociology 3 s.h.
Impact of urbanization on social life, social networks; how social forces shape patterns of urban growth; racial segregation, gentrification; consequences of the growth of suburbs; urban crises, including concentrated poverty and crime. Prerequisite: 034:001 or 034:002.

034:250 Seminar: Selected Topics in Political Sociology 3 s.h.
Repeatable.

034:252 Political Sociology 3 s.h.
Survey, with focus on individual political behavior, development and operations of the state (policy states and policy institutions), collective political behavior and social movements.

034:253 Social Stratification 3 s.h.
Classical and contemporary theories; current research on the causes and magnitude of inequality in economics, power, and prestige; social mobility; critical issues in stratification.

034:254 Seminar: Selected Topics in Social Stratification 3 s.h.
Prerequisite: graduate standing in social science or consent of instructor.

034:256 Gender Stratification Seminar 3 s.h.
Occupational gender segregation; gender gap in pay; role of family caregiving in women’s lower pay; devaluation of caregiving work; comparable worth. Same as 131:256.

034:257 Seminar: Sociology of Labor Markets 3 s.h.
Sociological and economic theories and research concerning area/regional/local labor markets, industrial sectors and the dual labor market, occupational/internal labor markets; other structural explanations of inequality.

034:258 Seminar: Economy and Society 3 s.h.
Relationships between social classes and nation-states in capitalist societies; historical experience of the United States; comparative perspective, especially regarding Western Europe.

Teaching

034:382 Seminar: Practicum in Teaching Sociology 2-3 s.h.
Supervised preparation for teaching sociology courses; literature on teaching, course objectives, alternative teaching techniques; preparation of course syllabus, lectures, discussions, exams. Prerequisites: advanced graduate standing and consent of instructor.

Independent Reading and Research

034:383 Readings and Research Tutorial arr.
Repeatable. Prerequisite: consent of supervising faculty member.

034:385 Master’s Thesis arr.
Repeatable.

034:386 Ph.D. Dissertation arr.

SPANISH AND PORTUGUESE

Chair: Thomas E. Lewis
Professors: Daniel Baldetti (Spanish and Portuguese/Cinema and Comparative Literature), Oscar Hahn, Thomas E. Lewis, Adriana Méndez Rodenas
Associate professors: Maríaa Joé Barbosa, Walter Dobrian, María A. Duarte, Paula M. Kempchinsky, Philip W. Klein, Judith E. Liskén-Gasparro, Kathleen Newman (Spanish and Portuguese/Cinema and
Undergraduate Programs

Elementary and intermediate courses in Spanish interrelate five performance goals—listening, reading, speaking, writing, and cultural knowledge—in a staged progression that has as its overall goal the development of proficiency. Emphasis is given to acquisition of Spanish language skills in communicative contexts, enrichment of vocabulary through an introduction to Hispanic culture, and development of grammatical accuracy in speaking and writing.

The beginning course in Portuguese is for students without previous study or experience with the language. There also is a special Portuguese course for students who already know Spanish. Portuguese classes are small, providing for a great deal of individual attention in an informal language-learning environment. Courses emphasize speaking, comprehending, and reading Brazilian Portuguese. They also incorporate cultural material in the form of videos and music.

Bachelor of Arts in Spanish

The undergraduate major in Spanish is built on course work in Spanish peninsular and Spanish American literature, Hispanic cultures, Hispanic linguistics, and advanced language skills. The goal of the major is twofold: to study content areas related to the Spanish language, such as literature, culture, and linguistics; and to develop proficiency in the Spanish language in all four skills: speaking, listening, reading, writing. Students who major in Spanish may go on to graduate study in areas such as Spanish and Portuguese literature, Hispanic linguistics, or comparative literature. They also may combine their Spanish studies with other areas to prepare for career opportunities in international business, government, travel, or communications, where knowledge of another language and other cultures is essential.

The undergraduate major in Spanish requires 36 s.h. (12 courses) beyond the leve of the General Education Program. The core requirements are one course each from the principal academic areas of the department (see "Required Courses"). The remaining eight courses may focus on one or more of these areas or may include a broad range of courses within the department. Eight elective courses may include course work in Spanish language skills as well as more advanced language courses that focus on specialized language functions and purposes. They also may include courses in Portuguese or in related areas from other departments, such as history, anthropology, or linguistics, subject to restrictions (see "Restrictions"). Spanish majors are required to take at least three courses numbered 035:170 or above. Senior Seminar (035:195) is recommended for all Spanish majors.

Required Courses

One course in Hispanic linguistics
One course in Spanish peninsular literature
One course in Spanish American literature
One course in culture (peninsular or Spanish American) 3 s.h.

Lists of courses in each of these four areas are available from the Department of Spanish and Portuguese.

Elective courses in Spanish
Total 24 s.h. 36 s.h.

RESTRICTIONS

All course work taken for the major must be at the 100 level, including three numbered 035:170 through 035:198.

No more than five of the following courses or equivalent transfer or study abroad courses (as determined by the departmental study abroad adviser) may be applied toward the major.

035:103 Writing in Spanish
035:104 Hispanic Institute: Language
035:106 Spanish for Native Speakers
035:116 Advanced Composition and Conversation
035:118 Business Spanish
035:170 Advanced Spanish Review
035:103 Composition and Conversation

No credit from 038:100 Accelerated Elementary Portuguese may be applied toward the Spanish major. Of the 5 s.h. earned in 038:104 Accelerated Intermediate Portuguese, 3 s.h. may be applied toward the Spanish major. A maximum of 6 s.h. of course work in Portuguese may be applied toward the Spanish major. A maximum of 6 s.h. of related course work from outside the department may be applied toward the Spanish major. Related courses must be approved by the department chair. Ordinarily, permission is granted only to students who have completed a minimum of 30 s.h. of course work in the major and whose g.p.a. in the major is 3.75 or higher.

Advanced undergraduates preparing to earn the B.A. with honors may enroll in graduate courses with permission of their adviser and the department chair. Ordinarily, permission is granted only to students who have completed a minimum of 30 s.h. of course work in the major and whose g.p.a. in the major is 3.75 or higher.

Elementary and Secondary Teaching Licensure in Spanish

Spanish majors interested in teaching Spanish at the elementary and/or secondary level must successfully complete the requirements for the Spanish major, as well as the requirements for teacher licensure. Students interested in teaching Spanish at the elementary and/or secondary level must complete all requirements for the major and must apply for admission to the Teacher Education Program in foreign language. For more information, contact the College of Education, Division of Curriculum and Instruction.

Four-Year Graduation Plan in Spanish

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

Before the third semester begins: Intermediate Spanish I (or equivalent second-year, first-semester competence in Spanish) and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: two courses in Spanish beyond Intermediate Spanish II (or equivalent second-year, second-semester competence) and at least one-half of the semester hours required for graduation

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

Before the eighth semester begins: a total of nine courses in the major

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

Honors in Spanish

Admission to the honors program in Spanish requires a cumulative University of Iowa g.p.a. of at least 3.33 and a g.p.a. of at least 3.33 in Spanish (contact the University Honors Program for more information about honors study at Iowa). Graduation with honors in Spanish requires that one course (3 s.h.) taken to fulfill major requirements be chosen for honors designation, in consultation with the department
honors adviser. It also requires registration for 3 s.h. in 035:198 Honors Research and Thesis. To complete 035:198 successfully, students must present an honors thesis written in Spanish and must present it orally to a faculty committee in a meeting conducted in Spanish.

Minor in Spanish

A minor in Spanish requires 15 s.h. of course work in Spanish with a g.p.a. of 2.00 or higher. At least 12 of the 15 s.h. must be earned at The University of Iowa or in a University of Iowa study abroad program in courses numbered 100 and above. Students may not elect 035:101 or 035:102 to fulfill requirements for the minor.

All courses to be applied toward the minor must be taught in Spanish. Courses elected for the minor may not be taken pass/fail.

International Study Programs in Spanish

The department participates in several study abroad programs. Its summer programs include the Board of Regents, State of Iowa, programs in Valladolid, Spain, the CIC Summer Program in Mexico, and the University Studies Abroad Consortium in Alicante, Madrid, and San Sebastián, Spain, and in Heredia, Costa Rica.

Included in the department’s semester or year-long programs are the CIEE Language and Area Studies Program (Alicante, Spain), the CIEE Language and Society Program (Seville, Spain), the CIEE Liberal Arts Program (Alcalá de Henares, Alicante, and Seville, Spain), the CIEE Humanities and Regional Studies Program (Barcelona, Spain), the CIEE Business and Society Program (Seville, Spain), and the University Studies Abroad Consortium (San Sebastián, Alicante, Madrid, and Bilbao, Spain; Santiago, Chile; and Heredia and Puntarenas, Costa Rica). Also included are CIEE programs in Buenos Aires, Argentina, and Santiago, Chile. For information about other foreign study programs in Spanish, contact the Office for Study Abroad.

Participation in a number of different programs allows the department to offer study abroad opportunities that take into account a variety of student interests and needs. Credit earned in these or other study abroad programs may be applied toward the requirements for the Spanish major or minor. The amount of credit that may be accepted varies according to the program.

Interested students should contact the department’s study abroad adviser. Credit earned in these or other study abroad programs may be applied toward the requirements for the Spanish major or minor. The amount of credit that may be accepted varies according to the program.

Bachelor of Arts in Portuguese

Portuguese has the sixth or seventh highest number of speakers of all the languages in the world; it is spoken in Portugal, Brazil, Angola, and Mozambique. There are more speakers of Portuguese in South America than there are of Spanish; therefore knowledge of Portuguese and of Luso-Brazilian culture is extremely helpful for students interested in career opportunities in international business, government, or related fields.

The B.A. in Portuguese requires the following courses or their equivalents, for a total of 30 s.h. of course work beyond the second-year level. Courses listed under “Prerequisites” may not be counted toward the 30 s.h.

**Prerequisites**

- 038:100 Accelerated Elementary Portuguese 5 s.h.
- One of these: 038:101 Accelerated Intermediate Portuguese 5 s.h. 038:102 Portuguese for Spanish Speakers 3 s.h.

**Required Courses**

- 038:103 Composition and Conversation 3 s.h.
- 038:105-038:106 Brazilian Literature I-II 6 s.h.
- 038:107 Introduction to Portuguese Literature 3 s.h.
- 038:114 Culture and Civilization of the Portuguese-Speaking World 3 s.h.

**Electives**

- Portuguese courses numbered above 038:102 15 s.h.

A maximum of 6 s.h. may be taken in approved courses in related areas (e.g., art, anthropology, comparative literature, geography, history, Latin American studies, linguistics, sociology, Spanish).

Four-Year Graduation Plan in Portuguese

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

**Before the third semester begins:**

- competence in first-year Portuguese and at least one-quarter of the semester hours needed for graduation

**Before the fifth semester begins:**

- competence in Intermediate Portuguese and at least one-half of the semester hours needed for graduation

**Before the seventh semester begins:**

- three or four additional courses for the major and at least three-quarters of the semester hours needed for graduation

**Before the eighth semester begins:**

- a total of seven courses in the major

**During the eighth semester:**

- enrollment in remaining major course work, any remaining General Education courses, and sufficient semester hours to graduate

Minor in Portuguese

A minor in Portuguese requires 15 s.h. of course work in Portuguese with a g.p.a. of 2.00 or higher. At least 12 of the 15 s.h. must be taken at The University of Iowa or in a University of Iowa study abroad program in courses numbered 038:103 and above. Courses elected for the minor may not be taken pass/fail.

International Study Programs in Portuguese

Students interested in studying in Brazil or Portugal should contact the Office for Study Abroad.

Language for Nonmajors

The department offers several opportunities for students who wish to study Spanish and Portuguese—languages that are spoken in many cultures around the world and are important in the study of literature, art, film, and many other disciplines.

All new students—including transfer students—who have previous course work or other experience with Spanish should take the Spanish Foreign Language Placement Test, offered at no charge during summer orientation programs and monthly by Evaluation and Examination Service. The test helps determine the level at which a student should begin Spanish language study at The University of Iowa. Students should take the test before they register for their first University of Iowa Spanish course.

Students with experience in Portuguese may receive individual evaluations from the department.

The department’s language courses are open to any student who has satisfied the specified prerequisites.

Spanish and Portuguese and General Education

The department offers courses in Spanish and in Portuguese that may be used to complete the General Education Program foreign language component.

The first course in the Spanish sequence, 035:001, is most appropriate for students who have had no previous experience in Spanish. The Spanish Foreign Language Placement Test can help determine where other students should begin study. Entering students who have completed two years of secondary-level Spanish study typically begin with 035:002. Upon completion of elementary Spanish (either 035:002 or 035:005), students take intermediate Spanish (035:011 and 035:012). The accelerated course 035:013 combines 035:011 and 035:012 into one semester and may be appropriate for some students.

The Portuguese sequence 038:100 and 038:101 provides a full two-year course in two semesters. Taught in small sections, the sequence is open to any student with an interest in the language.

Other Course Work for Nonmajors

Undergraduate students in other disciplines may complete portions of the College of Liberal Arts and Sciences General Education Program with 035:020 Contemporary Spanish American Narrative and 038:020 Contemporary Brazilian Narrative, which are taught in English, Culture and Civilization of the Portuguese-Speaking World (038:114) also is approved for General
Education and is taught in English. The department offers several other literature, film, and cultural survey courses of general interest that are taught in English.

International Business Certificate

The College of Liberal Arts and Sciences and the Henry B. Tippie College of Business offer a joint program leading to a Certificate in International Business. The program entails study of international business and economics; international relations and institutions; a foreign language, such as Spanish or Portuguese; and related area studies. It is designed not only for students who intend to pursue careers in international business but also for those interested in gaining a better understanding of the global economy and a broader awareness of the political, historical, and social environment in which international business operates.

The wide range of electives in the program permits students to tailor areas of specialization to their interests and to complement majors in both liberal arts and sciences and business administration.

For more information, contact CLAS Academic Programs & Services in the College of Liberal Arts and Sciences or the Undergraduate Program Office in the Tippie College of Business.

Latin American Studies Certificate

The department plays an important and active role in the Latin American Studies Program, an interdisciplinary undergraduate program focusing on the history, politics, social organization, economy, art, music, religion, and literature of Latin America. Work in the program may lead to a certificate or a minor in Latin American studies.

To receive the certificate, students must have sufficient competence in Spanish or Portuguese to do background readings in the language before enrolling in the required senior seminar. (See “Latin American Studies” in the Catalog.)

Graduate Programs

Master of Arts in Spanish

The Master of Arts program in Spanish has two emphases: literature, which provides training in literary analysis and broad knowledge of representative works in principal areas of Hispanic literature; and linguistics, which provides training in linguistic analysis and argumentation and broad knowledge of the principal subfields of Hispanic linguistics. Candidates for admission to the M.A. program must have completed the equivalent of the undergraduate Spanish major with a 3.00 g.p.a. or at least 3.00 in course work for the major. The M.A. requires a total of 30 s.h. (10 courses), as follows.

- Literature Emphasis
  - 035:200 Foreign Language Teaching Methods 3 s.h.
  - Two courses in Spanish linguistics numbered 035:170 and above 6 s.h.
  - Two courses in Spanish (peninsular) literature numbered 035:170 and above 6 s.h.
  - Two courses in Spanish American literature numbered 035:170 and above 6 s.h.
  - One course in literary theory 3 s.h.
  - Two electives 6 s.h.
  - At least eight of the 10 courses must be taken in the Department of Spanish and Portuguese and must be numbered above 035:170. The remaining two may be taken either in the Department of Spanish and Portuguese (numbered above 035:170) or in related departments, subject to approval by the director of graduate studies.

- Linguistics Emphasis
  - 035:200 Foreign Language Teaching Methods 3 s.h.
  - 035:204 Graduate Spanish Linguistics 3 s.h.
  - Two courses in Spanish or Spanish American literature numbered 035:170 and above 6 s.h.
  - Two courses in syntax 6 s.h.
  - Two courses in phonetics/phonology 6 s.h.
  - One course in history of the Spanish language, language variation, or applied linguistics/language acquisition 3 s.h.
  - One elective 3 s.h.
  - Of these 10 courses, at least six must be taken in courses offered by the Department of Spanish and Portuguese and must be numbered above 035:170. The remaining four may be taken either in the Department of Spanish and Portuguese (numbered above 035:170) or the Department of Linguistics.

Language Tool Requirement

M.A. candidates must complete the equivalent of one year of college-level study of any approved second foreign language; Portuguese is highly recommended. This requirement may be satisfied either by examination or through courses taken at The University of Iowa or another approved course by the director of graduate studies. The Ph.D. also requires 3-15 s.h. of thesis credit (035:299), for a total of 72 s.h. Course requirements for each track are as follows.

Program I: Literature Track

Students must earn at least 27 s.h. (9 courses) beyond the M.A. (or 19 courses beyond the bachelor’s degree). The following course work is required, some of which can be met by courses taken for the M.A.

- Two courses in literary theory
- Three courses in Spanish literature, at least one of which must be pre-1700 literature
- Three courses in Spanish American literature

One course in cinema

Two 300-level seminars in literary studies

One literature course in another Romance language (see “Language and Literature Tool Requirements”)

- 035:299 Thesis 3-15 s.h.

The specific plan of study for each student, tailored to his or her area of emphasis, must be transferable.
approved by the student's advisory committee. Ph.D. course work in Spanish (taken after the M.A.) must be at the 200- and 300-level, except the Romance literature course taken for the language tool requirement.

**LANGUAGE AND LITERATURE TOOL REQUIREMENTS**

Before the comprehensive examination, candidates must complete the equivalent of three years of college-level study in another Romance language and become well-acquainted with its literature in limited areas of specialization; the study of Luso-Brazilian literature is highly recommended. This requirement can be satisfied only through course work at The University of Iowa or another accredited university.

The equivalent of one year of college-level study of another approved foreign language also is required. If Portuguese is not the language chosen to fulfill the Romance literature requirement, it must be used for this requirement. Students who choose to write dissertations on topics in Spanish or Portuguese literature before 1700 must have the equivalent of one year of college-level Latin.

The language tool requirement may be satisfied either by examination or by course work at The University of Iowa or at another accredited university; language tool course work does not count toward the 72 s.h. required for the degree.

**Program II: Linguistics Track**

Students must earn at least 27 s.h. (9 courses) beyond the M.A. (or 19 courses beyond the bachelor's degree). The following course work is required; courses taken for the M.A. may be used to meet some of it.

- 035:207 Topics in Comparative Romance Linguistics 3 s.h.
- 035:209 Spanish Phonology 3 s.h.
- 035:210 Spanish Syntax 3 s.h.
- 103:110 Articulatory and Acoustic Phonetics 3 s.h.
- 103:201 Introduction to Syntax 4 s.h.
- 103:202 Syntactic Theory 3 s.h.
- 103:203 Introduction to Phonology 3 s.h.

One of these:

- 103:204 Phonological Theory 3 s.h.
- 103:212 Advanced Syntactic Theory 3 s.h.

Two courses from one or more of these: historical linguistics, language variation, language acquisition/psycholinguistics

- Two 300-level seminars in Hispanic linguistics 3 s.h.
- 035:299 Thesis 3-15 s.h.

The specific plan of study for each student, tailored to his or her area of emphasis, must be approved by the student's advisory committee. Ph.D. course work in Spanish (taken after the M.A.) must be at the 200- and 300-level, except some courses offered by the Department of Linguistics and the required third-year-level course in Portuguese (see “Language Tool Requirements”).

**LANGUAGE TOOL REQUIREMENTS**

Candidates in the linguistics track must complete the equivalent of three years of college-level study of Portuguese, and the equivalent of one year of college-level study of each of two other languages; for students specializing in historical linguistics, one of those two languages must be Latin. These requirements may be satisfied either by examination or through course work at The University of Iowa or another accredited university. The language tool course work does not count toward the 57 s.h. of pre-thesis course work required for the degree, except the third-year-level course work in Portuguese, which may be counted with the faculty adviser's approval.

**Comprehensive Examination**

The purpose of the Ph.D. comprehensive examination is to determine whether the candidate has gained sufficient breadth and depth of research knowledge in Hispanic literatures or linguistics to enter the profession as a teacher-scholar. The examining committee is composed of five departmental faculty members or four departmental faculty members and a fifth faculty member from a related department.

The Ph.D. comprehensive examination is administered in both written and oral parts. The written portion consists of a three-hour examination in each of four areas; an oral examination follows, usually lasting two hours.

The four examination areas for each track are as follows.

**Literature Track**

A broad area in Spanish literary history

- Two specialized areas of the candidate's choice

The two specialized areas of the candidate's choice might involve further and more specialized exploration of particular periods, genres, or movements within Spanish, Spanish American, and/or Luso-Brazilian literary and cultural history; or they might involve in-depth study of specific problems in Hispanic literary criticism or in literary theory. Areas involving cinema may also be included.

The reading lists for the broad areas are based on the departmental core reading lists for each genre and time period, with a supplemental list for each of the broad areas prepared by the candidate in consultation with the faculty member(s) directing the exam area. The reading lists for each of the specialized areas are drawn up by the candidate in consultation with the faculty member(s) directing the area.

At least one of these specialized areas must be related to the dissertation topic. In addition, a three-page preprospectus abstract must be submitted to the examining committee before the exam in the specialized area that relates to the dissertation topic. The abstract is discussed during the oral doctoral exam.

**Linguistics Track**

There are three required areas: Spanish syntax, Spanish phonology, and Spanish language acquisition. The candidates must choose an additional area, typically involving exploration of specialized topics in the core areas listed above or study of particular topics in comparative Romance linguistics, Spanish dialectology, history of the Spanish language, Portuguese linguistics, comparative foreign language pedagogy, sociolinguistics, or linguistic theory.

The reading lists for the three required areas are based on the departmental core reading lists, with a supplemental list for each area prepared by the candidate in consultation with the faculty member(s) directing the area. The reading list for the specialized area is drawn up by the candidate in consultation with the faculty member(s) directing that area. Of the four exam areas, two are intended to be broad, and two—including the specialized topic—focused.

At least one of these specialized areas must be related to the dissertation topic. In addition, a three-page preprospectus abstract must be submitted to the examining committee before the exam in the specialized area that relates to the dissertation topic. The abstract is discussed during the oral doctoral exam.

**Dissertation Prospectus**

No later than the fourth week of the semester subsequent to completion of the Ph.D. comprehensive examination, the candidate submits a dissertation prospectus for the dissertation committee's approval. The dissertation committee is composed of five faculty members, one of whom must be from outside the department.

**Financial Support**

Teaching and research assistantships are available to qualified graduate students. Usually, two years of support are available for the completion of a master's degree, and three years beyond the receipt of the M.A. for the Ph.D. As long as their studies and performance meet department standards, graduate students continue to receive support over a reasonable period of time, but usually not for more than five years. Students who want financial support should apply directly to the department office.

**Facilities**

The Language Media Center (LMC) provides students and faculty with a broad range of services and facilities that include a state-of-the-art audio language laboratory, individual audio recording carrels, video viewing rooms for small groups, video viewing stations for individuals, and networked microcomputer and interactive multimedia workstations. The LMC maintains a number of instructional technology classrooms that have special video, audio, and computer equipment for in-class presentations. The center's extensive collection of international media resources on audio tape, videotape, computer diskette, videodisc, and CD-ROM serves learners at many levels and in many disciplines.

**Courses**

**Basic Spanish**

Students may not, except with the department chair's approval, take an elementary course for credit after having completed a higher-level course for which the elementary course or its equivalent is a prerequisite.
035:001 Elementary Spanish I
Emphasis on oral and written skills. Taught in Spanish. Prerequisite: no previous study of Spanish. GE: foreign language.

035:002 Elementary Spanish II
Continuation of 035:001; emphasis on oral and written skills. Taught in Spanish. GE: foreign language. Prerequisite: 035:001 or equivalent.

035:005 Elementary Spanish Review

035:011 Intermediate Spanish I
3-4 s.h.
Communication in speaking and writing; cultural topics. Taught in Spanish. GE: foreign language. Prerequisite: 035:002 or 035:005 or equivalent.

035:012 Intermediate Spanish II
3-4 s.h.
Continuation of 035:011. GE: foreign language. Prerequisite: 035:011 or equivalent.

035:013 Accelerated Intermediate Spanish
6 s.h.
The 035:011-012 sequence in one semester. GE: foreign language. Prerequisites: 035:002 or 035:005 or equivalent, and consent of Spanish GE coordinator.

035:020 Contemporary Spanish American Narrative
3 s.h.
Themes and narrative techniques in major texts, 1960-present; overview of cultural, sociopolitical aspects. Taught in English, readings in English. GE: foreign civilization and culture or humanities. Prerequisite: 08G:001.

035:036 Contemporary Latin American News Colloquium
3 s.h.
Communication issues at transnational, national, and grassroots levels; emphasis on political, socioeconomic themes; contemporary affairs as reported in Latin American press, other media. Taught in English. Same as 130:020.

035:053 Special Work
1-3 s.h.

Spanish—Level 1, Primarily for Undergraduates
Students should take these courses at the start of the Spanish major.

035:013 Writing in Spanish
3 s.h.
Bridge from second-year Spanish to more advanced courses in Spanish language, linguistics, and literature; emphasis on skill development in writing, critical reading in Spanish, and oral communication. Taught in Spanish. Prerequisite: 035:002 or equivalent.

035:101 Accelerated Elementary Spanish
0-4 s.h.
Complete first-year course. Prerequisite: graduate standing.

035:102 Accelerated Intermediate Spanish
0-4 s.h.
Complete second-year course. Prerequisites: graduate standing and 035:101 or equivalent.

Basic Spanish for Graduate Nonmajors

035:101 Accelerated Elementary Spanish
0-4 s.h.
Complete first-year course. Prerequisite: graduate standing.

035:102 Accelerated Intermediate Spanish
0-4 s.h.
Complete second-year course. Prerequisites: graduate standing and 035:101 or equivalent.

035:122 Spanish Sound Structure
3 s.h.
Articulation of Spanish sounds—description and practice; how Spanish sounds are organized into classes, relations among the different classes, how they are implemented in context, patterns they exhibit. Prerequisite: one course in Spanish numbered above 035:102.

035:123 Foundations in Sociolinguistics
3 s.h.
Dialects, speech communities, variation, choosing a code, solidarity and politeness, language and gender, language planning. Prerequisite: one course in Spanish numbered above 035:102.

035:124 Introduction to Bilingualism
3 s.h.
Spanish-English bilingualism in the United States; language usage, maintenance, attitudes, shift, transfer, loss, code-switching. Prerequisite: one course in Spanish numbered above 035:102.

035:127 Social History of the Romance Languages
3 s.h.
Evolution of Romance languages from Roman Empire to present; emphasis on the sociopolitical context in which spoken Latin of the Roman Empire evolved into Romance languages. Prerequisite: 035:121 or 035:123 or equivalent.

035:128 Applied Spanish Linguistics
3 s.h.
How Spanish functions as a communicative system, as revealed through linguistic analysis; linguistic research on language acquisition to facilitate language learning and teaching in the classroom. Prerequisite: 035:121 or equivalent.

035:129 Structure of the Spanish Language
3 s.h.
Detailed analysis of sentence grammar, contrasting Spanish structures with English ones; topics include pronouns, subordinate and relative clauses, word order, types of Spanish-English constructions, characteristics of questions, negatives, passives, and commands. Prerequisite: 035:121 or equivalent.

Spanish American Literature and Culture

035:130 Spanish American Civilization
3 s.h.
Pre-Columbian, colonial, modern periods; socioeconomic structure, form of government, culture. Prerequisite: one course in Spanish numbered above 035:102.

035:131 Contemporary Spanish American Fiction
3 s.h.
Major 20th-century short story writers and novelists (Borges, Cortázar, Fuentes, García Márquez, Kulti, etc.) through representative works. Prerequisite: one course in Spanish numbered above 035:102.

035:132 Spanish American Poetry
3 s.h.
Poetry as a literary genre, short history of its development, early forms in Spanish America, poets from Modernism to present; readings from writers including Rubén Darío, Pablo Neruda, César Vallejo, Octavio Paz, J.L. Borges. Prerequisite: one course in Spanish numbered above 035:102.

035:133 Spanish American Theater
3 s.h.
Short history; leading 20th century Spanish American dramatists, including Florencio Sánchez, Villarrutia, Uslagi, Castellanos, Marqués, Gambaro, Wolf, Carralildio, Díaz, Berman. Prerequisite: one course in Spanish numbered above 035:102.

035:134 Spanish American Short Story
3 s.h.
Works by 19th- and 20th-century Spanish American male and female writers; emphasis on reading strategies and historical, cultural, literary backgrounds. Prerequisite: one course in Spanish numbered above 035:102.

035:135 Latinos in the United States
3 s.h.
Latina/o cultural practices and products as dynamic expressions that affirm, contest, resist and are shaped in and against the mappings of race, class, nation, gender, sexuality, colonialism. Prerequisite: one course in Spanish numbered above 035:102.

035:136 Culture and Language in the Andes
3 s.h.
The Andean world; transformations brought by arrival of Europeans; continuity, change in principles of organization with emphasis on indigenous responses to conquest and cultural domination by non-Andeans. Prerequisite: one course in Spanish numbered above 035:102.

035:137 Introduction to Chicano Culture and Literature
3 s.h.
Recent fiction and poetry by Chicano and Chicana writers. Taught in English. Same as 008:152.

035:139 Spanish American Love Poetry
3 s.h.
Development of the love theme in Spanish American lyric poetry during Romantic, Modernist, Avant-Garde periods; Darío, Mistral, Neruda, Paz, Cardenal. Prerequisite: one course in Spanish numbered above 035:102.

035:140 Spanish American Literature of Fantasy
3 s.h.
Principal manifestations from 19th-century origins to culmination in 20th-century masterpieces, analyzed. Prerequisite: one course in Spanish numbered above 035:102.

035:143 Cuban American Literature and Culture
3 s.h.
Experiences of Cuban exiles in United States; emergence of a literature and culture based on sense of dispossession, marginality, memory of island past. Taught in English. GE: cultural diversity. Prerequisite: 08G:001 or equivalent. Same as 048:196.

035:144 Latin American Women Writers
3 s.h.
Focus on 20th century; how Latin American women subjects view themselves in looking-glass of literature; textual practice specific to women; psychoanalytic approaches, contemporary feminist criticism. Prerequisite: one course in Spanish numbered above 035:102. Same as 131:196.

035:145 Latin American Cinema
3 s.h.
Latin American film, histories of the four major national film industries; aesthetic and political debates surrounding the New Latin American Cinema movement of the 1960s and 1970s. Taught in English. Prerequisite: one course in Spanish numbered above 048:050 or one course numbered above 035:102. Same as 048:145.

035:147 Topics in National Literatures/Cultures
3 s.h.
Prerequisite: one course in Spanish numbered above 035:102.

035:148 Topics in Cinema, Literature and Society
3 s.h.
Concept of national cultures examined through major texts in literary and film history in one Latin American nation. Prerequisite: one course in Spanish numbered above 035:102.

035:149 Colonial Spanish American Culture
3 s.h.
Facts of the Spanish American Colonial world, including literature, arts, music, architecture, and other forms of cultural expression; major themes and concepts, including discovery, conquest, evangelization, intercultural contact, memory, identity. Taught in Spanish. Prerequisite: one course in Spanish numbered above 035:102.

Spanish Literature and Culture

035:150 Spanish Civilization
3 s.h.
Political, religious, social, economic backgrounds; important cultural, literary movements. Prerequisite: one course in Spanish numbered above 035:102.

035:151 Renaissance and Golden Age Literature
3 s.h.
Introduction to literary questions of 15th to 17th centuries in Spain, understanding of literary Spanish and cultural issues of the period—end of the feudal mind, beginning of individualism.
poetry, emergence of theater, crisis of empire. Prerequisite: one course in Spanish numbered above 035:102.

035:152 Modern Spanish Literature 3 s.h.
Important trends from Romanticism to generation of 1927.
Prerequisite: one course in Spanish numbered above 035:102.

035:153 Don Quijote 3 s.h.
Close reading of Cervantes’ comic novel about utopia and alienation in early Modern Spain.
Prerequisite: one course in Spanish numbered above 035:102.

035:154 Hispanic Institute: Culture 3 s.h.
Overview of geography, history (political, economic, social), architecture, painting, music of Spain; readings, slides, video and audio cassettes, visits to local sites of cultural significance.
Prerequisite: 035:012 or equivalent.

035:155 Hispanic Institute: Literature 3 s.h.
Introduction to poetry, narrative, and theater in Spanish literature; textual commentary and critical interpretations of major representative works of selected historical periods.
Prerequisite: one course in Spanish numbered above 035:102 or equivalent.

035:159 Hispanic Fiction to Film 3 s.h.
Major literary works of Spain and Spanish America as texts and as films.
Prerequisite: one course in Spanish numbered above 035:102.

035:160 Medieval Spanish Literature in Context 3 s.h.
Introduction to Medieval Spanish literature, culture, history, Poesia del Cid and the Recopilatorio, Milagres de Nuestra Señora y la Camino de Santiago, Libro de buen amor and popular culture; Cervantes and the Trastámara dynasty.
Prerequisite: one course in Spanish numbered above 035:102.

035:161 Masterpieces of Modern Spanish Literature 3 s.h.
Works of the last 30 years of the 19th century, up to the outbreak of the Spanish Civil War; Realism, Naturalism, generation of 1889, generation of 1913, generation of 1927.
Prerequisite: one course in Spanish numbered above 035:102.

Spanish/Spanish American Literature and Culture

035:166 Advanced Literary Analysis 3 s.h.
Introduction to theoretical concepts and methods through reading and analysis of Hispanic literary texts.
Prerequisite: 035:111 or 035:121 or 035:122.

Spanish—Level 3, for Undergraduate and Graduate Students

Undergraduates should take the following courses during their last semesters of enrollment. These courses are also open to M.A. students. All of these courses require a research paper. Prerequisites vary.

035:170 Advanced Spanish Review 3 s.h.
Attention to problem areas of vocabulary and grammar; structured practice of realistic communication tasks; advanced level.
Prerequisites: at least three courses in Spanish numbered above 035:102.

035:172 Topics in Cultural Studies 3 s.h.
Prerequisite: two courses in Spanish numbered above 035:102.

035:173 Colonial Spanish American Literature 3 s.h.
Readings from the formative period of Spanish American culture; may include discovery and conquest, ethnicity and gender, dissent and popular resistance.
Prerequisite: one course in Spanish numbered above 035:130.

035:174 Contemporary Mexican Theater and Performance 3 s.h.
Contemporary theatrical and performance production in Mexico since the 1960s.
Prerequisite: one course in Spanish literature numbered above 035:130.

035:175 Cultural Identity in Caribbean Literature 3 s.h.
Main currents in 20th-century Hispanic Caribbean literature: americantismo literario, poesía negra, testimonial narrative centered on slavery and women’s fiction; Caribbean cultural context in music, humor, Afro-Caribbean rituals.
Prerequisite: one literature course in Spanish numbered above 035:130.

035:176 Latin American Studies Seminar 3 s.h.

035:178 Topics in Spanish American Literature 3 s.h.
Prerequisite: one literature course in Spanish numbered above 035:130.

035:179 Survey of Twentieth-Century Puerto Rican Literature 3 s.h.
Prerequisite: one course in Spanish numbered above 035:130.

035:181 Topics in Spanish Literature 3 s.h.
Prerequisite: one Spanish literature course numbered above 035:130.

035:182 Spanish Picaresque Literature 3 s.h.
Major texts on the Spanish Golden Age’s anthem; rogue and pseudo-autographical narratives; questions of poverty, social mobility, and conflict in the development of modern Spanish society; male, female social offenders; Lazarillo de Tormes, Cuentos de Alfonso, La hija de Celestina. Prerequisite: one literature course in Spanish numbered above 035:130.

035:185 Topics in Hispanic Linguistics 3 s.h.
Prerequisite: 035:121 or equivalent.

035:186 Introduction to Spanish Syntax 3 s.h.
Basic principles of transformational syntax as applied to analysis of Spanish syntactic structures.
Prerequisite: 035:121 or equivalent.

035:187 Spanish American Dialectology 3 s.h.
Analysis and comparison of selected morpho-syntactic aspects of the dialects of several Spanish American countries; basic historical issues of Spanish American dialectology; regional and social dialects, dialect zones, peninsular dialect base, etc. Prerequisite: 035:121 or equivalent.

035:188 History of the Spanish Language 3 s.h.
Development of phonetic, morphological, syntactical properties of the Spanish language from its Latin roots; emphasis on internal history and process of expansion from a minor dialect (Castilian) to a significant world language.
Prerequisite: 035:121 or equivalent.

035:189 Introduction to Spanish Phonology 3 s.h.
Sound patterns of Spanish; how various theoretical approaches solve basic problems in Spanish phonology; identification of linguistic universals, how they are manifested in the sound structure of Spanish.
Prerequisite: 035:121 or 035:122 or equivalent.

035:190 Chicanas Cinema 3 s.h.
History of Chicano independence and industry film and television production since the Chicanos political and cultural movement began in the 1960s. Taught in English. Same as 048:190.

035:191 Topics in Latin American Cinema 3 s.h.
Taught in English. Same as 048:178.

035:192 Topics in Film Studies 3 s.h.
Prerequisite: one course in Spanish literature or culture numbered above 035:130.

035:193 Sexuality in Hispanic Cultures 3 s.h.
Historical, social, and theoretical concepts of sexuality in Spanish, Spanish American, and U.S. Latino/a cultures; constructions of gender and sexual identity. Taught in English. Prerequisite: 154:110 or consent of instructor. Same as 154:185.

035:194 Topics in Literary Studies 3 s.h.

035:195 Senior Seminar 3 s.h.
Analysis of works of a major author or theme from the Latin American or the Peninsular traditions or on a focused set of problems in Hispanic linguistics.

035:196 Spanish-to-English Translation Workshop 3 s.h.
Translation theory and practice of literary translation; effectiveness of translations done by students, markets for literary translation, copyright law, authors’ rights. Prerequisite: two courses in Spanish literature numbered 035:130 or above.

035:198 Honors: Research and Thesis 2-3 s.h.
Prerequisite: honors standing.

035:199 Special Work 1-3 s.h.

Spanish—Primarily for Graduate Students

035:200 Foreign Language Teaching Methods 3 s.h.
Readings in pedagogical theory and practice and second language acquisition; experience designing activities for teaching and assessment, with critiques based on current theories and approaches; development of reflective practices toward one’s own language teaching.

035:201 Second Language Acquisition Research and Theory I 3 s.h.
Theories of second language acquisition; perspectives (linguistic, psychological, sociological, etc.) that inform SLA theory; paradigmatic or synchronic perspective. Repeatable. Prerequisite: 035:204 or equivalent. Recommended: additional graduate course work in linguistics. Same as 20E:201, 103:262.

035:202 Second Language Acquisition Research and Theory II 3 s.h.
Same as 039:201, 164:202.

035:204 Graduate Spanish Linguistics 3 s.h.
Introduction to goals and concepts of generative linguistics as applied to Spanish: main subfields of linguistics; skill development in linguistic analysis, argumentation.

035:207 Topics in Comparative Romance Linguistics 3 s.h.
Comparative study of phonology, morphology, or syntax of the main Romance languages as informed by linguistic theory; diachronic or synchronic perspective. Repeatable. Prerequisite: 035:204 or equivalent. Recommended: additional graduate course work in linguistics. Same as 20E:201, 103:262.

035:209 Spanish Phonology 3 s.h.
Modern approaches to synchronic phonology as applied to Spanish; focus on traditional descriptive problems, recent generative analyses. Prerequisite: course in phonology or linguistics.

035:210 Spanish Syntax 3 s.h.
Modern syntactic constructions examined in framework of selected syntactic theory; emphasis on development of syntactic argumentation. Prerequisite: 035:204 or equivalent. Recommended: additional graduate course work in syntax.

035:212 Multimedia and Second Language Acquisition 3 s.h.
Same as 009:238, 011:253, 164:211.

035:2131 Spanish American Dialectology 3 s.h.
Regional and social dialects, dialect zones, peninsular dialect base; indigenous and African influences; linguistic analysis of representative data samples of Spanish American speech.

035:225 Topics in Literary Studies 3 s.h.
Repeatable.

035:226 Topics in Cultural Studies 3 s.h.
Repeatable.

035:227 Topics in SLA: Writing 3 s.h.
Theory, research approaches, and assessment in second language writing. Taught in English. Same as 010:275, 164:227.

035:228 Topics in SLA: Speaking 3 s.h.
Same as 009:236, 164:221.

035:230 Spanish American Narrative: Nineteenth Century 3 s.h.
Review of narrative, with emphasis on Romanticism.

035:231 Spanish American Narrative: Modern and Regional 3 s.h.

035:232 Spanish American Theater 3 s.h.
Theater from pre-Columbian era up to and emphasizing contemporary theater.

035:233 Spanish American Poetry of the Twentieth Century 3 s.h.
Principal works of vanguard poets and characteristics of their poetry, Noemí Huistarho, César Valdés, Pablo Neruda, Jorge Luis Borges, Octavio Paz, Nicolás Piña.

035:234 Spanish American Poetry before 1918 3 s.h.
European and Spanish American forerunners of modernism; modernistic poetic modes in verse and prose; early modernists; Rubén Darío and flowering of modernism; death and transfiguration of the ewan.
035:230 Contemporary Spanish American Literature 3 s.h.
Narrative from mid-20th century to present; emphasis on the Boom, post-Boom.

035:238 Nation and Narration in Latin America 3 s.h.
Nation formation in Latin America examined through representative novels and travel books from 19th and 20th centuries, centers of emerging nationalism, critical studies on gender. Same as 048:258.

035:239 Queer Theory 3 s.h.
Same as 088:239, 048:239.

035:240 Topics in Culture and Politics 3 s.h.
Comparative and interdisciplinary approaches to current theoretical debates regarding culture and politics. Repeatable.

035:244 Short Story in Spanish America 3 s.h.
Development of genre and context of literary movements; writings by Borges, Cortázar, Kullo, others.

035:245 Spanish American Short Story of Fantasy 3 s.h.
Theories of Tzvetan Todorov, Imre Béresi on literature of fantasy; diachronic study of literature of fantasy; from Juan Montalvo's "Gaspar Bombín" to work of Boy Caurers, Julio Cortázar; other authors including Dario, Lugones, Nerio, Borges, Carpenter, Fuentes, García Márquez.

035:246 Women Writers of Latin America 3 s.h.
Emergence of a new female subject in 20th-century Latin American women's writing; Latin American women writers' contribution to contemporary feminist thought. Same as 131:246.

035:247 Readings: Latin American History 3 s.h.
Questions that have preoccupied major Latin American peninsula and 16th and 20th centuries: constitutional organization, secularization of society, colonial heritage, race and nationality, the Indian, "Latin democracy," cultural identity, social revolution, economic dependency and development. Same as 016:248.

035:248 Topics in Film Studies 3 s.h.
Repeatable.

035:250 Medieval Spanish Literature 3 s.h.
Critical reading of canonical medieval texts in their cultural context; application of modern theory to medieval texts; works such as: El Poema del Cid, El Romancero Virg., Mitámos de Nuestra Señora, El Conde Lucanor, El Libro de Buen Amor.

035:254 Drama of the Golden Age 3 s.h.
Theater, spectacle, public entertainment; social conditions of Baroque theater in Spain; ideological, moral messages; Lope de Vega's model for mass-oriented art; depiction of ideal society; heroes, transgression; role of women.

035:255 Spanish Renaissance and Baroque Literature 3 s.h.
Critical analysis of social, moral, political function of literature in early modern Spain; Renaissance and Baroque poetry; La Celestina, pastoral literature; Don Quijote, narratives of the court; modern subjectivity; the question of genre.

035:256 The Picaresque Novel 3 s.h.
Spanish Renaissance, Baroque from perspective of the narratives of deception, moral crisis; aesthetic, social dimensions of a literary work; intertextuality, subjectivity; Lazarillo, Guzmán de Alfarache; works by Quevedo, Cervantes, Salas Barbånóllo, Castillo Sólarzano.

035:257 Spanish Romanticism 3 s.h.
Spanish literature and culture 1814-1850, in context of political and economic history.

035:258 Nineteenth-Century Spanish Novel 3 s.h.
Development of the novel in Spain, from Romanticism to the Generation of 1898; novel's role in helping to consolidate ideologies and structures of 19th-century bourgeois society.

035:259 Contemporary Spanish Fiction 3 s.h.
The post-Francisco novel in Spain; literary "postmodernism" and relationships between Spanish literature, politics, and society since 1975; representative significant works.

035:262 Jiménez, García Lorca, and the Generation of '27 3 s.h.
Poetry and poetic theory of Juan Ramón Jiménez, Federico García Lorca, Rafael Alberti, Pedro Salinas, Jorge Guillén.

035:263 Twenty-First-Century Spanish Drama 3 s.h.
Principles of playwriting; trends to present day: works by Benavente, García Lorca, Casanova, Buero Vallejo, Sastre.

035:269 Topics in Spanish American Literature 3 s.h.
Repeatable.
Undergraduate Program

Course Requirements

The B.A. in speech and hearing science requires eight core courses offered by the department and seven cognate courses offered by other departments. Students may choose cognate courses that also help complete the College of Liberal Arts and Sciences General Education Program. The requirements are as follows.

All of these:
003:015 Introduction to Speech and Hearing Processes and Disorders 3 s.h.
021:110 Phonetics: Theory and Applications 3 s.h.
003:111 Basic Acoustics for Speech and Hearing 3 s.h.
003:112 Anatomy and Physiology of Speech Production 4 s.h.
003:113 Introduction to Hearing Science 4 s.h.
003:116 Basic Neuroscience for Speech and Hearing 3 s.h.
003:117 Psychology of Language 3 s.h.
003:118 Language Development 3 s.h.
031:001 Elementary Psychology 3 s.h.
103:100 Introduction to Linguistics 3 s.h.

One of these:
07P:025/22S:025 Elementary Statistics and Inference 3 s.h.
07P:143/22S:102 Introduction to Statistical Methods 3 s.h.
22S:030 Statistical Methods and Computing 3 s.h.

One of these:
029:008 Basic Physics (with lab) 4 s.h.
*029:011 College Physics 4 s.h.

One of these:
031:013 Introduction to Clinical Psychology 3 s.h.
042:108 Basic Aspects of Aging 3 s.h.

One of these:
*002:002 Introductory Animal Biology 4 s.h.
*002:010 Principles of Biology I 4 s.h.
002:021 Human Biology 4 s.h.

*Courses marked with an asterisk are preferred.

A good background in mathematics is essential for success in many courses required for the B.A. in speech and hearing science. All students who graduate with an undergraduate degree in speech and hearing science are required to have completed a college-level trigonometry course successfully. First-year calculus is encouraged, particularly for those who are interested in pursuing a graduate degree in audiology.

Transfer students must complete a minimum of 15 s.h. in departmental courses at The University of Iowa.

Students have the opportunity and are encouraged to obtain 25 hours of supervised clinical observation, a prerequisite for participation in clinical practicums at the graduate level. This requirement is satisfied by completion of independent observations or required observations made for elective departmental courses.

Four-Year Graduation Plan

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

Note: The major requires specific mathematics and science competencies that may be satisfied with courses approved for General Education.

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

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

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

Before the eighth semester begins: 12 courses in the major.

Honors

The junior/senior-year program leading to the B.A. with honors in speech and hearing science is open to students who at the beginning of their junior year have completed at least 10 s.h. of course work that can be counted toward a major in the department and have earned a g.p.a. of at least 3.33 in all major course work and all course work at the University.

At any time during their undergraduate study, students who have a cumulative University of Iowa g.p.a. of at least 3.33 and who did not enter the University as honors students may enroll in the University Honors Program (contact the University Honors Program for more information). Students with a g.p.a. of 3.33 or higher may enter the department’s honors program upon recommendation of the departmental honors adviser. To graduate with honors, students must be members of the University Honors Program and must complete both 003:097 Honors Seminar and 003:098 Honors Thesis. Students register for 003:097 in the spring of the junior year and for 003:098 in both fall and spring of the senior year.

Graduate Programs

M.A. With Research Emphasis (General Emphasis)

The general M.A. program is designed for students who intend to pursue a Ph.D. or who seek additional education but do not intend to work professionally in the United States as speech language pathologists or audiologists. It typically includes a substantial portion of the courses in the professional M.A. and Au.D.
curricula. Students who enroll in the general M.A. program are required to complete a thesis and defend their research successfully at a final oral examination.

In addition to a thesis, the M.A. with general emphasis requires a minimum of 38 s.h. of graduate credit and typically requires two years to complete. The specific course work required depends on the background and interests of the student.

**M.A. With Speech-Language Pathology Emphasis**

The program of study for an M.A. with professional emphasis in speech-language pathology is designed to ensure that upon graduation the student will meet requirements for immediate professional employment. M.A. candidates usually have a background of undergraduate courses in speech and hearing science, psychology of language, and human behavior essentially equivalent to an undergraduate major at this field at The University of Iowa.

Before registering in the program, entering M.A. candidates receive descriptive materials about basic science core courses considered to be required preparation for the M.A. program, and clinical core courses required for the M.A. for which comparable courses taken at the undergraduate level may be accepted. Decisions about incorporating background course work in these areas are made by the faculty adviser in consultation with the student and the instructors of the basic science or clinical core courses.

The M.A. program with professional emphasis prepares clinicians in speech-language pathology or audiology who are able to function independently in a variety of clinical settings. Graduates of the program meet all academic and practicum requirements for clinical certification by the American Speech-Language-Hearing Association and for licensure by the state of Iowa.

Students pursuing the professional M.A. degree with speech-language pathology emphasis must complete at least 4 s.h. of work related to research. This may be accomplished by any combination of enrollment in seminars (at 2 s.h. each) and/or research hours. Completion of the research hours may consist of work toward a thesis or preparation of a paper involving one or a combination of the following: literature review, prospectus development, and presentation of data. A paper is required at the end of each semester's enrollment. An exception to this requirement can be made in the case of research hours leading to a thesis.

Candidates for an M.A. with professional emphasis in speech-language pathology are not required to complete a thesis, although all students demonstrating research aptitude and interest are encouraged to do so. Students who do not elect the thesis option are required to take final written comprehensive examinations.

A typical M.A. program with professional emphasis usually takes two calendar years to complete but may take longer, depending on the student's background and personal interests.

**CORE REQUIREMENTS**

All students seeking an M.A. with professional emphasis in speech-language pathology must take the following:

- 003:135 Foundations of Clinical Practice I (3 s.h.)
- 003:136 Foundations of Clinical Practice II (1 s.h.)
- 003:137 Foundations of Clinical Practice III (1 s.h.)

In addition, they must take the following courses unless they completed equivalent courses as undergraduates:

- 003:114 Introduction to Voice Disorders (2 s.h.)
- 003:115 Structural Disorders (2 s.h.)
- 003:116 Basic Neuroscience for Speech and Hearing (3 s.h.)
- 003:140 Manual Communication (1 s.h.)
- 003:145 Developmental Speech and Language Disorders (3 s.h.)
- 003:146 Neurogenic Disorders of Speech and Language (3 s.h.)
- 003:183 Introduction to Stuttering (2 s.h.)
- 003:185 Hearing Loss and Audimetry (3 s.h.)
- 003:244 Rehabilitative Audiology (3 s.h.)

Students must take 003:510 Seminar: Introduction to Research in Speech and Hearing (1 s.h.) during the fall semester of their first year. They must take 003:515 Proseminar (0 s.h.) during the fall and spring semesters of their first year.

Also required are additional semester hours of practicum registration sufficient to meet supervised, direct clinical experience requirements for the Certificate of Clinical Competence of the American Speech-Language-Hearing Association and the Iowa license, and to provide broad supervised practicum experience.

In addition to the core requirements listed above, all students preparing to be speech-language pathologists must take a minimum of 14 s.h. from the following:

- 003:201 Principles of Voice Production (3 s.h.)
- 003:202 Methods of Teaching Voice (2 s.h.)
- 003:206 Speech and Language Disorders of Young Children: Birth to Five Years (2 s.h.)
- 003:207 Speech and Language Disorders of Older Children: Five to Eighteen Years (2 s.h.)
- 003:208 Communication Problems of Developmental Disabilities (2 s.h.)
- 003:209 Language Disorders: Multicultural Issues (2 s.h.)
- 003:213 Voice Habilitation (2-3 s.h.)
- 003:221 Instrumentation for Voice Analysis (2 s.h.)
- 003:231 Communication Problems Associated with Head and Neck Cancer (1 s.h.)
- 003:233 Aphasia (2 s.h.)
- 003:234 Motor Speech Disorders (2 s.h.)
- 003:236 Swallowing Disorders (2 s.h.)
- 003:237 Cleft Palate and Related Disorders (2 s.h.)
- 003:260 Designing Assistive Devices (1-3 s.h.)
- 003:282 Phonological Development and Disorders (2 s.h.)
- 003:283 Stuttering (2 s.h.)
- 003:350 Perceptual In Auditory Communication (1 s.h.)
- 003:530 Seminar: Communication Disorders and Aging (2 s.h.)
- 07E:104 Remedial Methods in Speech and Hearing (2 s.h.)
- 049:125 Voice for the Actor (3 s.h.)

Students also must earn a total of 4 s.h. in 003:590 Research; or 4 s.h. by taking two seminar courses (e.g., 003:521 and 003:523); or 4 s.h. in a combination of research and seminar courses.

**M.A. With Audiology Emphasis**

All students working toward an M.A. in audiology must take the following:

- 003:219 Fundamentals of Laboratory Instrumentation (3 s.h.)
- 003:240 Hearing Aids I (3 s.h.)
- 003:242 Hearing Aids II (3 s.h.)
- 003:244 Rehabilitative Audiology (3 s.h.)
- 003:245 Pediatric Audiology (2 s.h.)
- 003:246 Advanced Audiology (3 s.h.)
- 003:247 Medical Audiology (3 s.h.)
- 003:290 Objective Measures (3 s.h.)

Two advanced courses chosen from these:

- 003:222 Speech and Hearing Anatomy (2 s.h.)
- 003:224 System and Signal Theory for Speech and Hearing Sciences (3 s.h.)
- 003:230 Advanced Hearing Science and Speech Perception (4 s.h.)
- 003:243 Hearing Aid Assembly and Repair (2 s.h.)
- 003:249 Cochlear Implants (2 s.h.)
- 003:256 System Theory and Physiology of Hearing (4 s.h.)
- 003:292 Advanced Rehabilitative Audiology (2 s.h.)
- 07E:104 Remedial Methods in Speech and Hearing (2 s.h.)

Additional practicum, research, and elective courses:

Students planning to work as audiologists in a school setting must take 07E:104 Remedial Methods in Speech and Hearing along with appropriate practicum experiences.

**Requirements for Employment**

A number of states, including Iowa, require a state license in speech-language pathology or audiology for persons who work in settings other than the public schools. Students who meet the requirements listed above for the M.A. with professional emphasis also meet the academic requirements for the license in Iowa as well as in most other states. In 2007 the requirements to earn national certification to work as an audiologist will change. Certification will require a clinical doctoral degree or the equivalent. Currently, it is not known how this change will affect state licensure. Students preparing for careers in audiology should consult their advisers.
Public School Licensure

Students preparing for clinical positions in public schools typically must meet school licensure or certification requirements of the states in which they plan to work. The following criteria meet the requirements for endorsement as speech-language pathologists or audiologists in Iowa and most other states.

- A master’s degree with professional emphasis in speech-language pathology or audiology
- Completion of an approved human relations component
- Completion of courses that cover the education of the disabled and the gifted and talented (e.g., exceptional persons, education of the gifted)
- Completion of the requirements in speech-language pathology or audiology and the 20 s.h. professional education sequence, including 07E:104 Remedial Methods in Speech and Hearing and 07E:192 Special Area Student Teaching as a speech-language pathologist or audiologist; course work in the following areas must be completed to meet the professional education sequence:
  - Curriculum (e.g., reading, methods, curriculum development)
  - Foundations (e.g., philosophy of education, foundations of education)
  - Educational measurement (e.g., tests and measurements, measures and evaluations of instruction)
  - Educational psychology (e.g., educational psychology, counseling theories and techniques)
  - Special education (e.g., introduction to special education, exceptional persons, learning disabilities)
  - Child development (e.g., human growth and development, principles and theories of child development, history and theories of early childhood education)

Note: General Education courses (e.g., introduction to psychology, sociology, history, literature, and humanities) do not meet the requirements of the professional education sequence.

Clinical Doctorate in Audiology (Au.D.)

In 2007 the requirements to earn national certification to work as an audiologist will change. Certification will require a clinical doctorate or the equivalent. Currently, it is not known how this change will affect state licensure. Students preparing for careers in audiology should consult their advisers.

In addition to the requirements listed above for the M.A. with audiology emphasis, the Au.D. requires the following:

- 22M:016 Calculus for the Biological Science (or one semester of calculus) 4 s.h.
- 003:135 Foundations of Clinical Practice I 3 s.h.
- 003:226 Hearing Loss Prevention 2 s.h.

- 003:230 Advanced Hearing Science and Speech Perception 4 s.h.
- 003:238 Professional Issues I 1 s.h.
- 003:239 Professional Issues in Audiology II 1 s.h.
- 003:256 System Theory and Physiology of Hearing 4 s.h.
- 003:222 Speech and Hearing Anatomy 2 s.h.
- 003:243 Hearing Aid Assembly and Repair 2 s.h.
- 003:249 Cochlear Implants 2 s.h.
- 003:292 Advanced Rehabilitative Audiology 2 s.h.
- 003:526 Seminar: Rehabilitative Audiology 2 s.h.
- 003:535 Seminar: Evoked Potentials 2 s.h.
- 003:536 Seminar: Speech Perception 2 s.h.
- 003:537 Seminar: Clinical Audiology 2 s.h.
- 003:538 Seminar: Auditory Physiology 2 s.h.
- 07E:104 Remedial Methods in Speech and Hearing 2 s.h.
- 068:199 Basic Otolaryngologic Science 2 s.h.
- 132:180 Fundamental Neuroscience 4 s.h.
- 158:101 Topics in Deaf Studies 3 s.h.
- 158:110 Teaching Deaf and Hard of Hearing Students 3 s.h.

Doctor of Philosophy

The Ph.D. program provides flexible, comprehensive training for the scholar-researcher interested in communication processes and their disorders. Students with diverse backgrounds in the natural and behavioral sciences are encouraged to apply and develop their skills in an atmosphere of interdisciplinary research.

The program reflects the broad interests of its multidisciplinary faculty, whose members have diverse backgrounds in speech, language, hearing, engineering, physiology, physics, psychology, linguistics, and bioengineering. Faculty members are committed to an interdisciplinary approach to questions at every level of the speech and language production/perception system.

The purpose of the doctoral program is to provide the integrated knowledge necessary for a productive career in speech-language pathology and audiology, communication science, and related areas.

The department encourages candidates with special interests, goals, or backgrounds to develop individualized programs of study. There are no required courses for the Ph.D.; rather, a program of study is developed by each student in consultation with a faculty committee. The course of study is developed from courses offered by the department, courses in other areas (e.g., physics, engineering, psychology, mathematics, statistics, physiology, neurology, anatomy, and others), and special reading and research experiences.

The following courses are offered by the department of Speech Pathology and Audiology primarily for Ph.D. students. (Students interested in specific areas of research and selected publication citations of the faculty are encouraged to write to the department.)

- 003:201 Principles of Voice Production 3 s.h.
- 003:218 Psycholinguistics 3 s.h.
- 003:219 Fundamentals of Laboratory Instrumentation 3 s.h.
- 003:230 Advanced Hearing Science and Speech Perception 4 s.h.
- 003:250 Acoustics of Speech 4 s.h.
- 003:251 Biomechanics of Speech 4 s.h.
- 003:252 Physiology of Speech Production 5 s.h.
- 003:256 System Theory and Physiology of Hearing 4 s.h.
- 003:511 Introduction to Doctoral Research (taken spring of the first year) 1 s.h.

In addition, seminars offered by the department cover a broad range of topics relevant to doctoral study.

Students in the Ph.D. program usually are expected to register for research credit (003:590 Research) during each semester of residence and to register for and participate in 003:515 Proseminar. Knowledge in each of the areas of hearing, speech, language, mathematics, statistics, computer science, and instrumentation is required of all students. Decisions regarding the extent of this knowledge and how it is obtained (e.g., course work or independent study) are made jointly by the student and the student’s faculty committee.

Doctoral students who have not written a master’s thesis must complete the equivalent of a master’s thesis project as well as the comprehensive examination. They also must successfully complete and submit a dissertation based on original research.

Admission, Awards

The Department of Speech Pathology and Audiology has requirements for admission and graduate appointments that supplement those specified by the Graduate College. A brief summary of department requirements is presented below. More detailed information is available from the director of Graduate Studies.

Application Form

All applicants for admission to graduate study in the Department of Speech Pathology and Audiology must complete the Graduate College application form. In addition, they must complete the departmental information form, available from the department.

Admission to the M.A. and Au.D. Programs

The department bases M.A. admission on applicants’ credentials relative to those presented by other applicants for the same term. While an undergraduate g.p.a. above 3.20 does not ensure admission, the department admits few applicants with an undergraduate g.p.a. below 3.20.

Completed applications must be received no later than January 15 for enrollment in the next summer session or fall semester. Later applications are considered only in special situations. Applications to begin study in the
Clinical experience with a wide variety of speech, hearing, and language disorders.

In addition to the clinical training in the Wendell Johnson Speech and Hearing Clinic, training also may be acquired in supervised clinic practice with elementary school children through various state area education agencies; and in supervised clinic practice in speech, language, and hearing services provided by the UIHSC Consolidated Speech and Swallowing Services, the Regional Child Health Specialty Clinics, University Hospital School, and the Veterans Affairs Medical Center:

Public and private departments and programs in addition to those mentioned above often contribute to the cooperative professional training, research, and service programs.

Research Facilities

Facilities in the Wendell Johnson Speech and Hearing Center include audiometric testing suites, diagnostic and remediation suites, equipment for diagnosis and therapy, a closed-circuit television system, and laboratories and equipment for acoustic, physiologic, and perceptual studies of speech, and for audiologic, psychoacoustic, and neurophysiologic studies of hearing. Mechanical and electronic shops and trained technical personnel are available for assistance in research instrumentation.

Cooperation with varied departments in the Carver College of Medicine and the College of Dentistry makes additional laboratory facilities available for research on problems in speech and hearing. The participation and cooperation of specialists from various fields, including psychology, child development, education, engineering, statistics, and medicine, further broaden the scope of research activities in speech and hearing.

Courses

For Undergraduates

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>003:015</td>
<td>Introduction to Speech and Hearing Processes and Disorders</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>003:096</td>
<td>Research Practicum</td>
<td>arr.</td>
</tr>
<tr>
<td>003:097</td>
<td>Honors Seminar</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>003:098</td>
<td>Honors Thesis</td>
<td>2 s.h.</td>
</tr>
</tbody>
</table>

For Undergraduate and Graduate Students

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>003:110</td>
<td>Phonetics: Theory and Applications</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>003:111</td>
<td>Basic Acoustics for Speech and Hearing</td>
<td>3 s.h.</td>
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</tbody>
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Admission to the Ph.D. Program

Completed applications should be received by February 1 for the summer session and fall semester and November 1 for the spring semester. Applicants who want to be considered for graduate appointments must file the admission application by February 1. Applicants usually are notified of action on their admission within six weeks of the application deadline.

Application for Graduate Appointments

The following information applies to all financial appointments administered by the department.

- Graduate appointments usually begin only in fall semester. Students beginning study in the spring semester or summer session are considered for appointments for the following fall semester.
- Scores on the Graduate Record Examination (GRE) General Test are required for consideration for financial assistance.
- Application appointments must be received by January 15 to ensure consideration for an appointment beginning the following fall semester.
- Initial appointment offers generally are made between April 1 and June 1; however, the department continues to make offers after this time.

Clinical Facilities

The clinical training program benefits greatly from the fact that Iowa City is the principal health center of the state, and from the ready availability of its health service facilities for the clinical training of students in speech-language pathology and audiology.

The University of Iowa Affiliated Speech and Hearing Services include the Wendell Johnson Speech and Hearing Clinic; the division of speech and hearing in the University Hospitals and Clinics (UIHSC) Department of Otologyngy—Head and Neck Surgery; UIHSC Consolidated Speech and Swallowing Services, which provides services to the Departments of Neurology, Child Psychiatry, and Otologyngy—Head and Neck Surgery; speech and hearing services in the Center for Disabilities and Development; Pediatrics Regional Child Health Specialty Clinics; and the audiology and speech pathology service in the Veterans Affairs Medical Center. Directors of these programs form the Council on Speech Pathology and Audiology at The University of Iowa.

The Wendell Johnson Speech and Hearing Clinic serves the University and the general public. Included in its services are outpatient evaluation and rehabilitation programs for speech, hearing, and language problems and one-week intensive summer programs in stuttering, language development, reading, and aural rehabilitation. These clinical programs give students supervised training in the practical applications of the academic sciences.
with communication disorders; primarily for nonmajors and service providers. Introduction to speech-language pathology and audiology. Offered summer sessions of odd years. Same as 153.165.

003:183 Introduction to Stuttering 2 s.h.
Theoretical perspectives on the nature of stuttering, including onset of development, basic phenomena, beginning treatment principles. Offered spring semesters. Prerequisite: 003.112.

003:185 Hearing Loss and Audiology 3 s.h.
Introduction to protection of audiology; overview of hearing disorders, evaluation, treatment; basic pure-tone and speech audiometry. Offered fall semesters. Pre- or corequisite: 003.113.

003:186 Problems: Speech/Hearing Processes and Disorders arr.
Consent of instructor required.

For Graduate Students

003:201 Principles of Voice Production 3 s.h.
Basic physical, physiological, and psychological principles in instrumental and professional, impaired voice production; vocal anatomy, voice classification; control of loudness, pitch, register, quality, efficient, efficient use of voice; instrumentation for voice analysis, synthesis. Offered fall semesters. Same as 205.201.

003:202 Methods of Teaching Voice 1-2 s.h.
Comparison of pedagogical techniques; attitude assessment, language aptitude, physical, emotional characteristics; mental imaging, physical and emotional stress, phonation; laboratory, articulatory behavior; vocal hygiene; performance anxiety, student/teacher relationship. Offered spring semesters and summer sessions. Prerequisite: consent of instructor. Same as 202.205.

003:204 Voice for Performers 2 s.h.
Same as 205.216, 049.201.

003:206 Speech and Language Disorders of Young Children: Birth to Five Years 2 s.h.
Disorders resulting from phonological, semantic, pragmatic, and morphosyntactic deficits; receptive, expressive problems; special assessment and intervention procedures. Offered spring semesters. Prerequisite: 003.145 or equivalent.

003:207 Speech and Language Disorders of Older Children: Five to Eighteen Years 2 s.h.
Predominant patterns of language impairment in children, adolescents; approaches to clinical management, emphasis on language skills for educational success. Offered fall semesters. Prerequisite: 003.165 or consent of instructor.

003:208 Communication Problems of Developmental Disabilities and Disabilities 2 s.h.
Nature, clinical management of communication problems of children with mental retardation, pervasive developmental disorders, cerebral palsy. Offered summer sessions. Prerequisite: 003.145 or equivalent.

003:209 Language Disorders: Multicultural Issues 2 s.h.
Language evaluation and treatment from a multicultural perspective; how speech-language pathologists, audiologists should provide nonbiased services to clients from other cultures; dialects versus disorders. Prerequisites: 003.145 or equivalent or consent of instructor.

003:210 Clinical Ethics in Audiology and Speech 2 s.h.
Issues in clinical ethics; academic ethics concepts to audiologists and speech pathology practice; development of tools to resolve ethical dilemmas.

003:213 Voice Habilitation 2-3 s.h.
Approaches and skills of intervention in development, training, rehabilitation of vocal behavior; motor learning, efficacy of treatment strategies, factors affecting compliance with recommended therapy. Offered fall semesters. Prerequisites: 003.114 and equivalent, and 003.201. Same as 025.356.

003:218 Psycholinguistics 3 s.h.
Theoretical, empirical issues in psycholinguistics; models demonstrating relations of formal language structure to psycholinguistic operations used in speech perception, production; laboratory emphasis on psycholinguistic research in psycholinguistics. Offered fall semesters. Prerequisite: consent of instructor. Same as 218.3

003:219 Fundamentals of Laboratory Instrumentation 3 s.h.
Electrical circuits, emphasis on application to instrumentation used in speech and hearing, laboratory focus on instrumentation. Offered fall semesters.

003:221 Instrumentation for Voice Analysis 2 s.h.
Use of various acoustic and cepstral measures, perceptual measures, aerodynamic, acoustic analysis for assessment of vocal, respiratory function; use of these techniques in conjunction with perceptual evaluation of voice. Offered summer sessions of even years.

003:222 Speech and Hearing Anatomy 2 s.h.
Laboratory course in anatomy of speech and hearing mechanisms; instruction in dissection techniques. Offered summer sessions. Prerequisite: consent of instructor.

003:224 System and Signal Theory for Speech and Hearing Sciences 3 s.h.
Basics of signal and system theory used as tools to understand the principles of signal processing by the auditory system; principles of linear systems, Fourier transform, convolution, anatomy of the auditory system, cochlear mechanics, electrophysiology of the peripheral and central auditory pathway. Offered spring semesters. Prerequisite: calculus 1.

003:245 Pediatric Audiology 2 s.h.
Theory, procedures for assessment, habilitation of pediatric populations; laboratory emphasis on test administration. Offered spring semesters. Prerequisite: 003.185 or consent of instructor.

003:246 Advanced Audiology 3 s.h.
Theory, procedures for assessment of hearing loss in adult and pediatric populations; experience in test administration through supervised clinical sessions. Offered fall semesters.

003:247 Medical Audiology 3 s.h.
Genetic, acquired, traumatic pathologies that affect auditory systems; nature, etiology, principles of assessment, treatment. Offered spring semesters. Prerequisite: 003.185 or consent of instructor.

003:248 Measurement Theory and Applied Statistics 3 s.h.
Test development and evaluation, including reliability and validity measurements; design and analysis of data from quasi-experiments using the general linear model, including analysis of variance, analysis of covariance, and multivariable linear regression; laboratory focus on data analysis and interpretation using computer software. Offered spring semesters. Prerequisite: 07P.025 or equivalent.

003:249 Cochlear Implants 2 s.h.
Introduction to cochlear implantation, history of cochlear implantation, introduction to cochlear technology, basics of device programming and trouble shooting, candidacy issues, outcomes in children and adults, auditory rehabilitation specific to cochlear recipients, the auditory brainstem implant, future trends in cochlear implantation. Offered summer sessions. Prerequisites: 003.185 and 033.244.

003:250 Acoustics of Speech 4 s.h.
Sound generation, propagation, radiation in human speech production; acoustic phonetics, analysis, synthesis, perception of speech. Offered fall semesters of odd years. Prerequisites: 003.111, 003.112, and a year of calculus; or consent of instructor. Same as 123.275.

003:251 Biomechanics of Speech 4 s.h.
Mechanics of air and tissue movement in speech production; muscle physiology and mechanics; computer simulation of articulatory and phonatory processes. Offered fall semesters of even years. Prerequisites: 003.111 and 003.112 or equivalents, and a year of calculus; or consent of instructor.

003:252 Physiology of Speech Production 5 s.h.
Current information, theory on physiological bases of speech production; emphasis on research techniques. Offered fall semesters of even years. Prerequisites: 003.112 and 003.219, or consent of instructor. Same as 123.277.

003:255 System Theory and Physiology of Hearing 4 s.h.
Basics of signal and system theory used as tools to understand the principles of signal processing by the auditory system; principles of linear systems, Fourier transform, convolution, anatomy of the auditory system, cochlear mechanics, electrophysiology of the peripheral and central auditory pathway. Offered spring semesters. Prerequisite: calculus 1.

003:260 Designing Assistive Devices 1-3 s.h.
System design [hardware and software] useful in building augmentative and alternative communication devices for the profoundly impaired; opportunity to build systems for theoretical and/or applied purposes, interdisciplinary, clinical perspectives. Offered summer sessions. Prerequisite: consent of instructor.

003:282 Phonological Development and Disorders 2 s.h.
Development of child's phonological system; theoretical bases; normative data support; assessment of disordered sound systems in child and adult populations; intervention procedures for speech sound disorders. Offered fall semesters. Prerequisite: 003.145 or equivalent.

003:283 Stuttering 2 s.h.
Issues, approaches to treatment of children, adults. Offered fall semesters. Prerequisite: 003.183 or equivalent. Corequisite: 003.145 or equivalent; or consent of instructor.

003:290 Objective Measures 3 s.h.
Theoretical basis, instrumentation, and clinical applications of multifrequency tympanometry and stauroacoustic emissions measurement; biomechanical models of structure and function of the outer and middle ear. Offered spring semesters. Prerequisite: consent of instructor.

003:292 Advanced Rehabilitative Audiology 2 s.h.
Current and developing procedures for assessment, habilitation of adults and children with hearing losses. Offered spring semesters. Prerequisite: consent of instructor.
003:301 Practicum: Speech-Language Pathology
Supervised clinical practice. Open only to M.A. professional emphasis students. Repeatable. Corequisite: 003:135 or equivalent.

003:302 Practicum: Speech-Language Assessment
Supervised clinical practice involving evaluation of individuals for speech or language impairments. Repeatable. Prerequisites: speech-language pathology nonprofessional M.A. standing and consent of instructor.

003:311 Clinical Practicum in Audiology
Supervised clinical practice. Repeatable. Prerequisites: audiology M.A. professional emphasis standing and consent of instructor.

003:312 Practicum: Hearing Measurement
Evaluation of individuals for hearing impairment and its impact; clinical practice. Repeatable. Prerequisite: consent of instructor.

003:350 Preceptorship in Augmentative Communication
Approaches to development of alternative modes of communication for individuals with limited oral communication. Offered fall semesters. Prerequisite: consent of instructor.

003:510 Seminar: Introduction to Research in Speech and Hearing
Philosophy of science, basic principles of research; issues in conducting research; review of research opportunities in the department. Offered fall semesters.

003:511 Introduction to Doctoral Research
Topics related to development and execution of research; doctoral program, use of library, human and animal subject issues, philosophy of science, use of common research tools, reading and writing research papers, research design in intervention, language assessment and remediation studies. Repeatable. Offered fall semesters and summer sessions. Prerequisite: consent of instructor.

003:521 Seminar: Stuttering
Theoretical issues, research literature. Repeatable. Offered spring semesters of even years. Prerequisite: consent of instructor.

003:523 Seminar: Voice
Research on normal and disordered voice production, perception; vocal abuse, fatigue, endurance; perceptual correlates of vocal pathology; models of voice production, spasmodic dysphonia; assessment of voice improvement. Prerequisite: consent of instructor.

003:525 Seminar: Cleft Palate
Current research, clinical applications related to assessment, management of speech problems associated with cleft palate and other disorders affecting velopharyngeal function. Offered summer sessions. Prerequisite: consent of instructor.

003:526 Seminar: Rehabilitative Audiology
Theoretical issues, research literature. Repeatable. Offered spring semesters.

003:528 Seminar: Neurogenic Communication Disorders
Speech, language, and cognitive problems associated with neurological disorders. Repeatable. Offered spring semesters.

003:530 Seminar: Communication Disorders and Aging
Emphasis on application of gerontology to speech-language pathology; audiology. Repeatable. Offered summer sessions of even years. Prerequisite: consent of instructor.

003:535 Seminar: Evoked Potentials
Auditory evoked potentials: theory, applications, current issues. Repeatable. Offered summer sessions. Prerequisite: consent of instructor.

003:536 Seminar: Speech Perception
Topics related to experimental procedures for listeners with hearing loss. Repeatable. Offered summer sessions of odd years. Prerequisite: consent of instructor.

003:537 Seminar: Clinical Audiology
Selected topics. Repeatable. Offered fall semesters. Prerequisite: consent of instructor.

003:538 Seminar: Auditory Physiology
Topics of interest to group. Repeatable. Offered spring semesters of even years. Prerequisite: consent of instructor.

003:539 Seminar: Tinnitus
Clinical management and treatments of tinnitus; mechanisms, psychological problems, and treatments including counseling, sound therapies; published articles, topic summaries. Offered fall semesters.

003:590 Research
Repeatable. Prerequisite: consent of instructor.

STATISTICS AND ACTUARIAL SCIENCE
Chair: James D. Broffitt


Associate professors: Mary Kathryn Cowles (Statistics and Actuarial Science/Biostatistics), Jian Huang (Statistics and Actuarial Science/Statistical Genetics), Joseph B. Lang, Russell V. Lenth, Onat Stramer.

Associate professor emeritus: John J. Birch
Assistant professor: Jun Yan
Adjunct assistant professor: James A. Scoting
Adjunct instructor: Mary D. Russo

Lecturers: Grace Chan, Gordon E. Klein

Undergraduate degrees: B.S. in Statistics, Actuarial Science
Undergraduate nondegree program: minor in Statistics

Graduate degrees: M.S. in Actuarial Science (Statistics); M.S., Ph.D. in Statistics

Web site: http://www.stat.uiowa.edu

During the 20th century, probability and statistics developed into an important scientific discipline essential to all fields of study that rely on information obtained from data. Author H.G. Wells acknowledged the importance of statistical reasoning when he stated, “Statistical thinking will one day be as necessary for efficient citizenship as the ability to read and write.” Today’s world is bombarded with numerical information. Informed decisions rely on the ability to separate fact from fiction by applying valid statistical analyses. Statisticians can provide crucial guidance in determining what information is reliable and which predictions may be trusted. They often help search for clues to the solution of a scientific mystery and sometimes keep investigators from being misled by false impressions.

The work of a statistician may range from the theoretical (developing new methodologies and statistical theory) to the applied (working with scientists and decision makers to collect, analyze, and interpret data). Regardless of the areas in which they work, statisticians need a strong background in mathematics and computer use.

Because uncertainty and data arise in many settings, statisticians have the opportunity to work on a variety of projects in industry, education, government, and research. Thousands of statisticians serve in medicine, law, agriculture, public policy, marketing, manufacturing, engineering, and other fields in the social and natural sciences. The diversity of applications is an exciting aspect of the field and is one reason why the demand for well-trained statisticians continues to be strong.

An actuary is a business executive, professionally trained in the mathematical sciences. Actuaries specialize in the evaluation of financial risk—most often in the context of life, health, and casualty insurance, where they design, analyze, and refine various programs to meet the insurance needs of society. Most actuaries are employed by insurance companies, where they have responsibilities for all phases of the development and maintenance of their company’s products. They have considerable influence on the financial soundness of their company through work in setting insurance policies and in compiling data for financial statements.

Some actuaries are employed as consultants. Their actuarial services are used by smaller insurance companies and by individual employers who need actuarial guidance in establishing insurance and retirement programs for their employees. A growing number of actuaries work in the area of asset/liability management. Some of these actuaries are employed by investment and consulting firms; others are employed by insurance companies.

Actuaries have been called financial architects and social mathematicians, because their combined analytical and communications skills help to solve a growing variety of financial and social problems. The actuarial profession is a demanding yet rewarding career choice.

Graduates of the Department of Statistics and Actuarial Science have enjoyed great success in finding employment at all levels of the profession’s fields.

Undergraduate Programs
The Bachelor of Science can be earned in statistics or in actuarial science.

Bachelor of Science in Statistics

The program requires 10 core courses that provide essential instruction in statistical methods, applications, and theory. In addition, students concentrate on their particular interest areas by choosing one of the following three emphasis tracks, in which they complete at least four courses.

Statistics in Business, Industry, Government, and Research
This track emphasizes statistical applications and data analysis. It is appropriate for students interested in careers as applied statisticians.
Statistical Computing
This track emphasizes statistical applications and requires additional course work in computer programming. It prepares students for work in statistical applications that require extensive computer programming for data analysis.

Mathematical Statistics
This track provides a solid foundation in statistical theory and applications. It requires additional course work in mathematics and is good preparation for graduate study in statistics.

Requirements

CORE COURSES

All students must complete the following.

Computer Science
22C:016 Computer Science I 4 s.h.

Mathematics
One of these one courses:
22M:025-22M:026 Calculus I-II 8 s.h.
22M:031-22M:032 Engineering Mathematics I-II; Single and Multivariable Calculus 8 s.h.
22M:027 Introduction to Linear Algebra 4 s.h.

Statistics
22S:030 Statistical Methods and Computing 3 s.h.
*22S:130-22S:131 Introduction to Mathematical Statistics I-II 6 s.h.
22S:152 Applied Linear Regression 3 s.h.
22S:158 Experimental Design and Analysis 3 s.h.
171:163 Introduction to the Design of Sample Surveys 3 s.h.
*It is recommended that well-prepared students who elect the Mathematical Statistics track take 22S:153 and 22S:154 in place of 22S:130 and 22S:131 to satisfy the core requirement in statistics.

SPECIAL EMPHASIS TRACKS

Students take four courses from one of the following tracks.

Statistics in Business, Industry, Government, and Research
171:164 Research Data Management 3 s.h.
Three of these:
22S:133 Quality Control 3 s.h.
22S:138 Bayesian Statistics 3 s.h.
22S:156 Applied Time Series Analysis 3 s.h.
22S:161 Applied Multivariate Analysis 3 s.h.
22S:162 Applied Generalized Regression 3 s.h.
22S:167 Environmental and Spatial Statistics 3 s.h.
22S:168 Intermediate Experimental Design 3 s.h.
22S:173 Statistical Consulting 3 s.h.
171:173 Intermediate Design of Sample Surveys 3 s.h.

Statistical Computing
22C:022 Object-oriented Software Development 4 s.h.
171:164 Research Data Management 3 s.h.
Two of these:
22C:072 Elementary Numerical Analysis 3 s.h.
22S:138 Bayesian Statistics 3 s.h.
22S:156 Applied Time Series Analysis 3 s.h.
22S:161 Applied Multivariate Analysis 3 s.h.
22S:162 Applied Generalized Regression 3 s.h.
22S:166 Computing in Statistics 3 s.h.
22S:167 Environmental and Spatial Statistics 3 s.h.
22S:168 Intermediate Experimental Design 3 s.h.
22S:173 Statistical Consulting 3 s.h.

Mathematical Statistics
22M:055 Fundamental Properties of Spaces and Functions I 3 s.h.
One of these:
22M:028 Calculus III 4 s.h.
22M:056 Fundamental Properties of Spaces and Functions II 4 s.h.
Two of these:
22S:138 Bayesian Statistics 3 s.h.
*22S:153-154 Mathematical Statistics I-II 6 s.h.
22S:156 Applied Time Series Analysis 3 s.h.
22S:161 Applied Multivariate Analysis 3 s.h.
22S:162 Applied Generalized Regression 3 s.h.
22S:167 Environmental and Spatial Statistics 3 s.h.
22S:168 Intermediate Experimental Design 3 s.h.
22S:173 Statistical Consulting 3 s.h.
22S:195-196 Probability and Stochastic Processes I-II 6 s.h.
*If 22S:153 and 22S:154 are used to satisfy the core requirements, they may not be used to satisfy the emphasis requirement.

Bachelor of Science in Actuarial Science

Actuaries achieve professional status by passing a series of examinations administered by the Society of Actuaries and the Casualty Actuarial Society. These examinations are challenging. Mastering the examination material requires tenacity and a substantial commitment of time.

This B.S. prepares students for careers in the actuarial profession and helps them learn material included in the professional examinations. Students take a variety of actuarial science courses. In addition, preparation for business aspects of the actuarial profession requires the study of accounting, law, finance, insurance, and economics. Courses relating to communication skills, such as writing and speaking, are also very important.

Due to the demanding nature of the actuarial science major and the difficulty of the professional examinations, the department maintains a selective admission program for actuarial science. Students must apply and be admitted to the major. Students interested in becoming actuaries should declare pre-actuarial science as their major when they enter The University of Iowa. Ordinarily, students apply for admission to the actuarial science major in the fall semester of their sophomore year. Students should apply no later than March 1 two years before they expect to graduate.

Students admitted to the actuarial science major usually have completed at least 40 s.h. at the University or another postsecondary institution, including a two-course calculus sequence, a course in linear algebra, a course in elementary real analysis, and a course in probability. The admission decision is based on a student’s performance in these courses and other courses relevant to success in the major. The trend in grades from semester to semester is considered, and ACT scores are helpful in evaluating transfer students.

Students who have a thorough understanding of mathematics, as reflected by their performance in prerequisite math course work, tend to be most successful in actuarial science study. For application forms and more information about selective admission, contact the Department of Statistics and Actuarial Science.

Permission to substitute course work taken at another institution for required courses at Iowa is decided case-by-case.

Courses required for the major are as follows.

Computer Science
22C:016 Computer Science I 4 s.h.

Economics
06E:001 Principles of Microeconomics 4 s.h.
06E:002 Principles of Macroeconomics 4 s.h.

Mathematics
22M:025-22M:026 Calculus I-II 8 s.h.
22M:027 Introduction to Linear Algebra 4 s.h.
22M:055-22M:056 Fundamental Properties of Spaces and Functions I-II 7 s.h.

Statistics and Actuarial Science
22S:112 Introduction to Actuarial Science 3 s.h.
22S:130-22S:131 Introduction to Mathematical Statistics I-II 6 s.h.
22S:174 Stochastic Process Models 3 s.h.
22S:175 Risk Theory 4 s.h.
22S:180 Mathematics of Finance 3 s.h.
22S:181-22S:182 Life Contingencies I-II 8 s.h.

In exceptional cases, the adviser may grant permission to waive 22S:130 and/or 22S:131.

Sample Schedule

The following is a sample schedule for completing actuarial science degree requirements.

FIRST YEAR

Fall Semester
06E:001 Principles of Microeconomics 4 s.h.
22C:016 Computer Science I 4 s.h.
22M:025 Calculus I 4 s.h.

Spring Semester
06E:002 Principles of Macroeconomics 4 s.h.
22M:027 Introduction to Linear Algebra 4 s.h.
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22M:026 Calculus II 4 s.h.

SECOND YEAR

Fall Semester
22M:055 Fundamental Properties of Spaces and Functions I 3 s.h.
22S:130 Introduction to Mathematical Statistics I 3 s.h.

Spring Semester
22M:056 Fundamental Properties of Spaces and Functions II 4 s.h.
22S:112 Introduction to Actuarial Science 3 s.h.
22S:131 Introduction to Mathematical Statistics II 3 s.h.

THIRD YEAR

Fall Semester
22S:153 Mathematical Statistics I 3 s.h.
22S:180 Mathematics of Finance 3 s.h.

Spring Semester
22S:154 Mathematical Statistics II 3 s.h.
22S:174 Stochastic Process Models 3 s.h.
22S:181 Life Contingencies I 4 s.h.

FOURTH YEAR

Fall Semester
22S:175 Risk Theory 4 s.h.
22S:182 Life Contingencies II 4 s.h.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.) Much of the work in the discipline is sequential, so students must begin requirements for the major as soon as possible. Individual study plans must be made carefully. Students who first enroll for a spring semester must consult the department to confirm a four-year plan.

B.S. in Actuarial Science

Before the third semester begins: 22M:025 and 22M:026, 22M:027, and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: 22M:055 and 22M:056, 22S:112, 22S:130 and 22S:131, and at least one-half of the semester hours required for graduation

Before the seventh semester begins: 22C:016, 22S:153 and 22S:154, 22S:174, 22S:180 and 22S:181, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: 22S:175 and 22S:182

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

There is no minor in actuarial science.

Graduate Programs

Master of Science

Each M.S. candidate has a committee of three or four members, which is responsible for recommending action on the candidate’s degree. For nonthesis programs, the committee’s recommendation usually is based on written examinations on topics covered in the required courses. For thesis programs, the committee’s final recommendation usually is based on an oral defense of the thesis, although it also may be based on a single written examination over the topics covered in the candidate’s program of study.

M.S. in Statistics

The M.S. program prepares students for careers as professional statisticians or for entry into the Ph.D. program. It includes a solid foundation in statistical computing, regression analysis, experimental design, and mathematical statistics, plus electives in statistical methods and/or theory. Students have the opportunity to concentrate on theory, applications, or a combination of the two.

Students may choose to write a thesis, which substitutes for two courses. The thesis defense usually replaces the master’s final exam.

Nonthesis Program

The following course work is required for the nonthesis master’s degree in statistics. A computer programming proficiency test is administered during departmental orientation.

Students who display inadequate programming skills are required to take a programming course.

22S:185 Asset and Liability Management 3 s.h.
22S:197 Readings in Statistics and/or Actuarial Science 3 s.h.
22S:190 Mathematical Methods for Actuarial Science 3 s.h.
22S:167 Intermediate Experimental Design 3 s.h.
22S:168 Nonparametric Statistical Methods 3 s.h.
22S:163 Nonparametric Statistical Methods 3 s.h.
22S:138 Bayesian Statistics 3 s.h.
22S:139 Bayesian Statistics 3 s.h.
22S:169 Applied Generalized Regression 3 s.h.
22S:164 Applied Statistics I-II 7 s.h.
22S:165 Applied Statistics I-II 7 s.h.
22S:166 Computing in Statistics 3 s.h.
22S:173 Statistical Consulting 3 s.h.
22S:193-22S:194 Statistical Inference I-II 6 s.h.
22S:195 Probability and Stochastic Processes I 3 s.h.
22S:196 Probability and Stochastic Processes II 3 s.h.

At least four of these:
22S:138 Bayesian Statistics 3 s.h.
22S:156 Applied Time Series Analysis 3 s.h.
22S:161 Applied Multivariate Analysis 3 s.h.
22S:162 Applied Generalized Regression 3 s.h.
22S:163 Nonparametric Statistical Methods 3 s.h.
22S:167 Intermediate Experimental Design 3 s.h.
22S:190 Mathematical Methods for Statistics 3 s.h.
22S:196 Probability and Stochastic Processes I 3 s.h.
22S:196 Probability and Stochastic Processes II 3 s.h.

Any 200-level statistics course 3 s.h.

Thesis Program

The master’s thesis program requires the following course work. A computer programming proficiency test is administered during departmental orientation. Students who display...
inadequate programming skills are required to take a programming course.

22S:164-22S:165 Applied Statistics I-II 7 s.h.
22S:166 Computing in Statistics 3 s.h.
22S:173 Statistical Consulting 3 s.h.
22S:191 Individual Study 6 s.h.
22S:193-22S:194 Statistical Inference I-II 6 s.h.
22S:195 Probability and Stochastic Processes I 3 s.h.

At least two of these:
22S:138 Bayesian Statistics 3 s.h.
22S:156 Applied Time Series Analysis 3 s.h.
22S:161 Applied Multivariate Analysis 3 s.h.
22S:162 Applied Generalized Regression 3 s.h.
22S:163 Nonparametric Statistical Methods 3 s.h.
22S:167 Environmental and Spatial Statistics 3 s.h.
22S:168 Intermediate Experimental Design 3 s.h.
22S:190 Mathematical Methods for Statistics 3 s.h.
22S:196 Probability and Stochastic Processes II 3 s.h.

Any 200-level statistics course
An elective approved by the adviser

The typical thesis is a statistical presentation of the results of a meaningful research project in another field, or a study of the characteristics of a new statistical method. The thesis work is directed by a supervising professor. Students earn academic credit for thesis work by registering for 22S:191 Individual Study.

M.S. in Actuarial Science

This program prepares students for careers in the actuarial profession by emphasizing the theory that underlies risk processes and the application of this theory to practical problems of insurance pricing and management. The required course work helps the students prepare for the professional examinations administered by the Society of Actuaries and/or the Casualty Actuarial Society.

The master’s degree in actuarial science is available without thesis. Students must complete at least 37 s.h. of course work to earn the M.S. The required courses are as follows.

One of these sequences:
22S:193-22S:194 Statistical Inference I-II 6 s.h. (for well-prepared students)

All of these:
22S:174 Stochastic Process Models 3 s.h.
22S:175 Risk Theory 4 s.h.
22S:176 Quality Assurance 3 s.h.
22S:180 Mathematics of Finance I 3 s.h.
22S:181-22S:182 Life Contingencies I-II 8 s.h.

At least three of these:
22S:150 Regression, Time Series, and Forecasting 3 s.h.
22S:171 Topics in Actuarial Science 3 s.h.
22S:185 Asset and Liability Management 3 s.h.
An approved economics or finance course 3 s.h.
A relevant non-actuarial science graduate course approved by the student’s adviser

The course 06F:100 Introductory Financial Management may be included in the student’s plan of study, as long as a more advanced course, with 06F:100 as a prerequisite, is also included.

Doctor of Philosophy

The Ph.D. program prepares students for careers in research, applications, and teaching. Students choose one of four areas of concentration for their course work: biostatistics; probability/mathematical statistics; statistical modeling; and actuarial science/financial mathematics.

Biostatistics emphasizes exposure to various biostatistical methods, such as survival analysis, categorical data analysis, and longitudinal data analysis. It prepares students for consulting and other positions in industry.

Probability/mathematical statistics emphasizes a broad, solid foundation in techniques and underpinnings of mathematical statistics. It focuses on breadth and depth is intended to produce well-rounded, knowledgeable scholars. This concentration is excellent preparation for academic positions in mathematical statistics and industrial or government positions that require broadly trained statisticians with a strong understanding of statistical theory.

Statistical modeling emphasizes the theory and application of a broad array of statistical models, such as linear, generalized linear, nonlinear, categorical, spatial, correlated response, and nonparametric regression models. This area of concentration prepares students to specify and choose appropriate models; fit the models using available statistical software; and make sound statistical conclusions and interpretable statements. It is excellent preparation for students interested in academic, industrial, or government positions that involve data modeling and analysis.

Actuarial science/financial mathematics emphasizes the theory of actuarial science, finance, and asset-liability management. It is excellent preparation for academic positions in universities that offer actuarial science programs or for positions in the insurance, pension, and financial industries.

The actuarial science/financial mathematics program is highly mathematical and selective. Most students are admitted after earning an M.S. degree in actuarial science at The University of Iowa.

Regardless of their area of concentration, students must complete a minimum of 72 s.h. of course work (including work done in the M.S. program). Students must pass comprehensive exams and write a dissertation. The Ph.D. program takes about three years to complete once the M.S. has been earned.

Course requirements for the Ph.D. in statistics are as follows.

CORE COURSES
22S:164-22S:165 Applied Statistics I-II 7 s.h.
22S:166 Computing in Statistics 3 s.h.
22S:173 Statistical Consulting 3 s.h.
22S:190 Mathematical Methods for Statistics 3 s.h.
22S:193-22S:194 Statistical Inference I-II 6 s.h.
22S:195 Probability and Stochastic Processes I 3 s.h.
22S:203-22S:204 Foundations of Probability I-II 6 s.h.
22S:253-22S:254 Advanced Inference I-II 6 s.h.
22S:255 Linear Models 4 s.h.
At least 2 s.h. of 22S:291, 22S:293, or 22S:295 (seminars)
At least 18 s.h. of 22S:299 Reading Research

CONCENTRATION AREA

Students take at least four courses in one of the following areas of concentration. At least two of these must be 200-level courses.

Biostatistics
22S:161 Applied Multivariate Analysis 3 s.h.
22S:167 Environmental and Spatial Statistics 3 s.h.
22S:220 Analysis of Categorical Data 3 s.h.
22S:225 Survival Data Analysis 3 s.h.
22S:241 Statistical Methods in Epidemiology 3 s.h.
22S:264 Longitudinal Data Analysis 3 s.h.
22S:274 Theory of Statistical Genetics 3 s.h.

Probability/Mathematical Statistics
22S:196 Probability and Stochastic Processes II 3 s.h.
22S:235 Time Series Analysis 3 s.h.
22S:238 Bayesian Analysis 3 s.h.
22S:256 Multivariate Analysis 3 s.h.

Statistical Modeling
22S:156 Applied Time Series Analysis 3 s.h.
22S:161 Applied Multivariate Analysis 3 s.h.
22S:162 Applied Generalized Regression 3 s.h.
22S:167 Environmental and Spatial Statistics 3 s.h.
22S:168 Intermediate Experimental Design 3 s.h.
22S:220 Analysis of Categorical Data 3 s.h.
22S:225 Time Series Analysis 3 s.h.
22S:238 Bayesian Analysis 3 s.h.
22S:248 Computer Intensive Statistics 3 s.h.

Actuarial Science/Financial Mathematics
06F:225 Finance Theory I 3 s.h.
06F:227 Finance Theory II 3 s.h.
22S:185 Asset and Liability Management 3 s.h.
22S:196 Probability and Stochastic Processes II 3 s.h.
22S:235 Time Series Analysis 3 s.h.

In addition, each semester in which a graduate student registers for at least 6 s.h., he or she must include at least one course of at least 2 s.h. offered by the Department of Statistics and Actuarial Science, excluding 22S:191, 22S:197, and 22S:299.

During the graduate program, students may take course work or seminars in other departments to achieve auxiliary goals of the doctoral program: to relate an area of specialization to other fields of knowledge; to acquire the ability to use electronic digital computing equipment; or to learn the language skills needed to read foreign scientific journals and respond in personal contacts with foreign scholars.
COMPREHENSIVE EXAM

Students take a comprehensive examination after completing most of the course work on their approved plan of study, typically during the third year of graduate study.

The comprehensive examination consists of a written core examination and an oral examination on statistical inference, linear models, and probability. These topics are generally covered in 22S:193, 22S:194, and 22S:195; 22S:203; 22S:253; and 22S:255. Study guides for the core examination are available from the department.

A program that does not conform to the prescribed requirements but is of high quality may be approved by the department chair.

Financial Support

Limited funds are available to help support outstanding applicants. Fellowships, teaching assistantships, and research assistantships carry an attractive stipend plus resident tuition status for students who are appointed at least one-quarter time. In some cases, these awards are further enhanced by a full or partial tuition scholarship.

Students who wish to be considered for financial assistance for their third year in the program should request a Ph.D. candidacy review no later than the spring semester of their second year.

Facilities

The Department of Statistics and Actuarial Science is housed in Schaeffer Hall, adjacent to Old Capitol, a National Historic Landmark and the center of campus. The department operates two computer labs in Schaeffer Hall. One, which also is used as an electronic classroom, contains 30 IBM PCs. The second houses 18 high-end UNIX workstations. Students use these labs for both class work and research.

Statistical Consulting Center

Because statisticians often team with other scientists in research projects, it is important that students gain experience working in groups. The department provides that experience in the Statistical Consulting Center, which offers assistance to members of the University community in planning experiments and carrying out the analysis of experimental data. Under faculty supervision, graduate students may participate in these activities as part of their training.

Although the majority of Statistical Consulting Center projects involve statistical problems arising in thesis research conducted by students in other departments, the center also seeks involvement in larger research projects and proposal writing.

Courses

Primarily for Undergraduates

Students may not receive credit for a Department of Statistics and Actuarial Science course numbered below 105 after receiving credit for one numbered above 105. Students may receive credit for only two of the following courses: 22S:102, 22S:008, 22S:025 (same as 07P:025), or 22S:030. Credit for 22S:002 is given only if the course is taken before 22S:008, 22S:025 (same as 07P:025), or 22S:030. Students may receive credit for only one course from each of these pairs: 22S:030 and 22S:105; 22S:101 and 22S:102; or 22S:120 and 22S:130.

22S:002 Statistics and Society 3 s.h.
Statistical ideas and their relevance to public policy, business, and the social, health, and physical sciences; focus on critical approach to statistical evidence. GE: quantitative or formal reasoning. Prerequisite: 22M:001 or equivalent.

22S:008 Statistics for Business 4 s.h.
Descriptive statistics, elementary probability, estimation and testing, regression, correlation, computer packages. GE: quantitative or formal reasoning. Prerequisite: 22M:002 or equivalent.

22S:025 Elementary Statistics and Inference 3 s.h.
Graphing techniques for presenting data, descriptive statistics, correlation, regression, prediction, logic of statistical inference, elementary probability models, estimation and tests of significance. GE: quantitative or formal reasoning. Prerequisite: 22M:001 or equivalent. Same as 07P:025.

22S:030 Statistical Methods and Computing 3 s.h.
Methods of data description and analysis using SAS, descriptive statistics, graphical presentation, estimation, hypothesis testing, sample size, power, emphasis on learning statistical methods and concepts through hands-on experience with real data. GE: quantitative or formal reasoning. Prerequisite: 22M:002.

22S:039 Probability and Statistics for the Engineering and Physical Sciences 3 s.h.
Descriptive statistics, exploratory data analysis, random variables, important discrete and continuous distributions, point and interval estimation, testing of hypotheses, regression, design of experiments, including factorial and fractional factorial designs. Prerequisite: 22M:032 or equivalent.

22S:043 Engineering Probability and Statistics 3 s.h.
Probability, Bayes Theorem, random variables, joint and conditional distributions, expectation, variance, important discrete and continuous distributions, functions of random variables, moment-generating function, sampling distributions, central limit theorem, statistical inference, including confidence intervals and hypothesis testing. Prerequisite: 22M:032.

For Undergraduate and Graduate Students

22S:101 Biostatistics 3 s.h.
Statistical methods primarily for research in health sciences and related fields; descriptive statistics, estimation, tests of hypotheses. Prerequisite: 22M:001 or equivalent.

22S:102 Introduction to Statistical Methods 3 s.h.
Same as 07P:143.

22S:105 Statistical Methods and Computing 3 s.h.
Methods of data description and analysis using SAS; descriptive statistics, graphical presentation, estimation, hypothesis testing, sample size, power, emphasis on learning statistical methods and concepts through hands-on experience with real data. Prerequisite: 22M:002.

22S:112 Introduction to Actuarial Science 3 s.h.
Life and casualty insurance contrasted; deterministic approach to life contingencies; elementary risk analysis, collective risk model; simulation. Offered spring semesters. Prerequisite: 22S:130; closed to students who have completed 22S:181.

22S:120 Probability and Statistics 4 s.h.
Models, discrete and continuous random variables and their distributions, estimation, hypothesis testing, statistical hypotheses. Prerequisite: 22M:026 or 22M:032.

22S:130 Introduction to Mathematical Statistics I 3 s.h.
Descriptive statistics, probability, discrete and continuous distributions, sampling, sampling distributions. Prerequisite: 22M:026 or 22M:032.

22S:131 Introduction to Mathematical Statistics II 3 s.h.
Estimation, testing statistical hypotheses, linear models, multivariate distributions, nonparametric methods. Prerequisite: 22S:130.

22S:133 Quality Control 3 s.h.
Prerequisite: 22S:039. Same as 056:162.

22S:138 Bayesian Statistics 3 s.h.
Bayesian statistical analysis, with focus on applications; Bayesian and frequentist methods compared; Bayesian model specification, choice of prior, computational methods; hands-on Bayesian data analysis using appropriate software; interpretation and presentation of analysis results. Prerequisite: 22S:120 or equivalent. Same as 07P:148.

22S:140 Design and Analysis of Biomedical Studies 3 s.h.
Prerequisite: 171:161. Same as 171:162.

22S:148 Intermediate Statistical Methods 3 s.h.
Prerequisite: 22S:102 or equivalent. Same as 07P:243.

22S:150 Regression, Time Series, and Forecasting 3 s.h.
Regression analysis, forecasting, time series methods; use of statistical computing packages. Prerequisite: 22S:120 or 22S:131 or 22S:154.

22S:152 Applied Linear Regression 3 s.h.
Regression analysis with focus on applications; model formulation, selection; interpretation and presentation of analysis results; simple and multiple linear regression; logistic regression; ANOVA; hands-on data analysis with SAS software. Prerequisite: 22S:030 or 22S:039 or 22S:043 or 22S:120 or equivalent. Same as 056:176.

22S:153 Mathematical Statistics I 3 s.h.
Probability, conditional probability, random variables, distribution and density functions, joint and conditional distributions, various families of discrete and continuous distributions, mgf technique for sums, convergence in distribution, convergence in probability, central limit theorem. Prerequisites: 22M:027 and 22M:028, or equivalents.

22S:154 Mathematical Statistics II 3 s.h.
Transformations, order statistics, point estimation, sufficient statistics, Rao-Blackwell Theorem, delta method, confidence intervals, likelihood ratio tests, applications. Prerequisite: 22S:153 or equivalent.

22S:156 Applied Time Series Analysis 3 s.h.
General stationary, nonstationary models, autocovariance autocorrelation functions, stationary, nonstationary autoregressive integrated moving average models; identification, estimation, forecasting in linear models; use of statistical computing packages. Offered spring semesters. Prerequisites: 22S:131, and 22S:152 or 22S:164.

22S:157 Correlation and Regression 4 s.h.
Prerequisite: 22S:148 or equivalent. Same as 07P:244.

22S:158 Experimental Design and Analysis 3 s.h.
Single- and multifactor experiments; analysis of variance, multiple comparisons; contrasts; diagnostics; fixed, random, and mixed effects models; designs with blocking and/or nesting; two-level factorial designs and fractions thereof; use of statistical computing packages. Prerequisites: 22S:030 and 22S:152.

22S:159 Design of Experiments 4 s.h.
Prerequisite: 22S:148. Same as 07P:246.

22S:160 Introductory Longitudinal Data Analysis 3 s.h.
Same as 171:174.

22S:161 Applied Multivariate Analysis 3 s.h.
MANOVA, discriminant analysis, factor analysis, principal components, canonical analysis, nonmetric scaling, cluster analysis, canonical data analysis, use of multivariate statistical computer packages. Offered fall semesters. Prerequisites: 22S:152 and 22S:158, or equivalents; and facility with matrix algebra. Same as 07P:245.

22S:162 Applied Generalized Regression 3 s.h.
Normal linear models and likelihood theory, generalized linear models, nonlinear normal errors models, model fitting, correlated response models, correlated response model fitting. Prerequisites: introductory statistics and applied linear models.

22S:163 Nonparametric Statistical Methods 3 s.h.
One- and two-sample location tests and estimation methods, measures of association and analysis of variance; emphasis on relationship with classical parametric procedures. Prerequisite: 22S:120 or 22S:148 or consent of instructor. Same as 07P:247.

Courses

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22S:104 Applied Statistics I 4 s.h.
Introduction to computing environment and statistical packages; descriptive statistics, basic inferential methods (confidence intervals, chi-square tests); linear models (regression and ANOVA models—specification and assumptions, fitting, diagnostics, selection, interpretation). Prerequisites: 22S:120 or equivalent, and facility with matrix algebra.

22S:105 Applied Statistics II 3 s.h.
Design of experiments, analysis of designed experiments, sample survey design. Prerequisite: 22S:104 or equivalent.

22S:106 Computing in Statistics 3 s.h.
Database management; graphical techniques; importing graphics into a processing document (e.g., LaToX); creating reports in LaTeX; SAS, JML, and macro language; simulation methods (Monte Carlo studies, bootstrap, etc.). Prerequisites: 22S:104 and 22S:105, or equivalent.

22S:107 Environmental and Spatial Statistics 3 s.h.
Methods for sampling environmental populations, sampling design, trend detection and estimation, geostatistics, kriging, variogram estimation, lattice data analysis, analysis of spatial point patterns. Prerequisites: 22S:152 and 22S:154, or equivalents.

22S:108 Intermediate Experimental Design 3 s.h.
Coomination of 22S:165, which is prerequisite: factorial and fractional factorial designs; response surface methods; canonical analysis; longitudinal data analysis; advanced topics in design. Prerequisite: 22S:165.

22S:171 Topics in Actuarial Science 3 s.h.
Corequisite: 22S:180.

22S:172 Topics in Statistics 3 s.h.
Prerequisite: 22S:154 or consent of instructor.

22S:173 Statistical Consulting 3 s.h.
Realtime supervised data analysis experiences, including statistical packages, statistical graphics, writing statistical reports, dealing with complex or messy data. Offered spring semesters. Prerequisites: 22S:152 and 22S:154, or 22S:164 and 22S:165.

22S:174 Stochastic Process Models 3 s.h.
Discipline and continuous time Markov chains, Poisson processes, Brownian motion, actuarial applications. Offered spring semesters. Prerequisites: 22S:153 or 22S:193 or consent of instructor.

22S:175 Risk Theory 4 s.h.
Frequency and severity distributions; individual and collective models; ruin theory; reinsurance; simulation. Offered fall semesters. Prerequisite: grade of C or higher in 22S:174.

22S:176 Credibility and Loss Distributions 4 s.h.
Application of statistical theory to development and estimation of loss distributions; fitting distributions to truncated and grouped data, analysis of simulated data; classical, Bayesian, and Bühlmann credibility models for experience rating. Offered spring semesters. Prerequisites: 22S:154 or 22S:154, and grade of C or higher in 22S:176.

22S:180 Mathematics of Finance 3 s.h.
Mathematics of compound interest, including annuities certain, amortization schedules, yield rates, sinking funds, bonds. Offered fall semesters. Prerequisite: 22S:180.

22S:181 Life Contingencies I 4 s.h.
Survival distributions and life table, life insurance, life annuities, benefit premiums. Offered spring semesters. Prerequisites: 22S:153 or 22S:193, and a grade of C or higher in 22S:180.

22S:182 Life Contingencies II 4 s.h.
Continuation of 22S:181, benefit premiums and reserves, multiple-decrement and multi-life models. Offered fall semesters. Prerequisite: grade of C or higher in 22S:181.

22S:185 Asset and Liability Management 3 s.h.
Interest rate risk, immunization, duration analysis; cash flow matching; fundamental theorem of asset pricing; term structure of interest rate models. Prerequisite: grade of C or higher in 22S:175 or 22S:181, or consent of instructor.

22S:188 Actuarial Exam Preparation arr.

22S:190 Mathematical Methods for Statistics 3 s.h.
Real numbers, point set theory, limit points, limits, sequences and series, Taylor series (multivariate), uniform convergence, Riemann-Steiltjes integrals. Prerequisite: graduate standing in statistics or consent of instructor.

22S:191 Individual Study arr.
Prerequisite: consent of instructor.

22S:193 Statistical Inference I 3 s.h.
Review of probability, distribution theory (multiple random variables, moment-generating functions, transformations, conditional distributions), sampling statistics, order statistics, limit theorems, principles of data reduction. Prerequisites: 22S:028 and 22S:131, or equivalents.

22S:194 Statistical Inference II 3 s.h.
Continuation of 22S:193, which is prerequisite; point estimation theory (MLE, Bayes, MM), hypothesis testing, interval estimation, decision theory.

22S:195 Probability and Stochastic Processes I 3 s.h.
Conditional expectations; Markov chains, including random walks and gambler’s ruin; classification of states; stationary distributions; branching processes. Prerequisite: 22S:150, or 22S:120 and consent of instructor.

22S:196 Probability and Stochastic Processes II 3 s.h.
Continuous-time Markov chains, including birth and death processes and time reversibility; renewal theory, including regenerative processes and semi-Markov processes; Brownian motion, stationary processes. Prerequisite: 22S:195.

22S:197 Readings in Statistics and/or Actuarial Science arr.
Prerequisite: consent of instructor.

### Primarily for Graduate Students

22S:203 Foundations of Probability I 3 s.h.
Probability theory, with emphasis on constructing rigorous proofs; measure spaces, measurable functions, random variables, induced measures, distribution functions, Lebesgue integral, product measure and independence, Borel Cantelli lemma, modes of convergence. Prerequisite: 22S:190.

22S:204 Foundations of Probability II 3 s.h.
Laws of large numbers, characteristic functions and properties of central limit theorem, Radon-Nikodym derivatives, conditional expected value and martingales. Prerequisite: 22S:203.

22S:220 Analysis of Categorical Data 3 s.h.
Log-linear models as basis for study of categorical data; models for discrete data, distribution theory, maximum likelihood and weighted least-squares estimation for cross-classified categorical data, tests of fit, model selection. Prerequisites: 22S:164 and 22S:194, or consent of instructor. Same as 171:262.

22S:225 Survival Data Analysis 3 s.h.
Same as 171:261.

22S:235 Time Series Analysis 3 s.h.
Stationary time series, ARIMA models, spectral representation, linear prediction inference for the spectrum, multivariate time series, state space models and processes, nonlinear time series. Prerequisites: 22S:153, 22S:154, and 22S:156.

22S:238 Bayesian Analysis 3 s.h.
Decision theory, coherence and utility, subjective probability, likelihood principle, maximum likelihood and Bayesian inference, asymptotic approximations for posterior distributions, sequential experiments, exchangeability, hierarchical models, nonparametric Bayesian procedures, empirical Bayes methods, numerical and Markov chain Monte Carlo methods. Prerequisites: 22S:190 and 22S:194.

22S:248 Computer Intensive Statistics 3 s.h.
Computer arithmetic: random variate generation; numerical optimization; numerical differentiation, integration, and linear algebra; smoothing techniques; bootstrap methods; cross-validation; MCMC, EM and related algorithms; other topics per student/instructor interests. Prerequisites: 22S:164 or 171:201, and proficiency in Fortran or C or C++ or Java.

22S:253 Advanced Inference I 3 s.h.
Concepts of convergence, asymptotic methods including the delta method, sufficiency, asymptotic efficiency, Fisher information and information bounds for estimation, maximum likelihood estimation, the EM-algorithm, Bayes estimation, decision theory. Prerequisites: 22S:190 and 22S:194.

22S:254 Advanced Inference II 3 s.h.
Hypothesis testing, asymptotics of the likelihood ratio test, asymptotic efficiency, statistical functionals, robustness, bootstrap and jackknife, estimation with dependent data. Prerequisite: 22S:253.

22S:255 Linear Models 4 s.h.
Linear spaces and matrix theory, multivariate normal distribution and distributions of quadratic forms, full-rank and non-full rank linear models, estimability, interval estimation, hypothesis testing, random and mixed models, applications. Prerequisites: 22S:164, 22S:165, and 22S:194.

22S:256 Multivariate Analysis 3 s.h.
Multivariate distributions, tests and estimates, multivariate general linear model, MANOVA, discriminant analysis, canonical correlation, factor analysis, principal components. Prerequisite: 22S:255.

22S:273 Advanced Topics in Actuarial Science Repealable. Prerequisite: consent of instructor.

22S:291 Seminar: Mathematical Statistics Repealable. Prerequisite: consent of instructor.

22S:293 Seminar: Probability Repealable. Prerequisite: consent of instructor.


22S:296 Seminar: Iowa Environmental Informatics 1 s.h.
Current research in environmental informatics. Repeatable. Prerequisite: consent of advisor.

22S:299 Reading Research Repealable. Prerequisite: consent of advisor.

### WOMEN’S STUDIES

**Chair:** Ellen Lewin  
**Professors:** Florence Babb (Anthropology/Women’s Studies), Susan Birrell (Health and Sport Studies/Women’s Studies/American Studies), Ellen Lewin (Women’s Studies/Anthropology)  
**Associate professor:** Rosemarie Scullion (French and Italian/Women’s Studies)  
**Associate professor emerita:** Sue Lafky  
**Assistant professors:** Meena Khandelwal (Anthropology/Women’s Studies), Johanna Schroen (History/Women’s Studies)

**Undergraduate degree:** B.A. in Women’s Studies  
**Undergraduate nondegree programs:** minor in Women’s Studies

Graduate degree: Ph.D. in Women’s Studies  
[Web site: http://www.uiowa.edu/~women]

Women’s studies is a multidisciplinary department focusing on the study of women in culture, society, history, and literature. Its major goal is to bring to the University community new research on women and gender—research frequently overlooked by traditional disciplines. By taking courses through many departments, students become acquainted with feminist scholarship and its methodologies in the humanities and the social sciences.

Faculty from across the University participate in the Department of Women’s Studies as affiliated faculty members (a complete list is available on the department’s web site). Other University of Iowa faculty members occasionally offer courses and participate in the department’s research, study, and interdisciplinary activities.

### Undergraduate Programs

The department offers a Bachelor of Arts and a minor for undergraduates.

### Bachelor of Arts

Requirements for the major in women’s studies have changed. Students who declared the major before the first day of fall semester 2004 may choose to complete the old requirements, but they must complete all requirements and graduate by August 2008. Students who entered the college in summer 2004 or later, or who declared the major on or after the first day of fall semester 2004, must complete the program described below.
The Bachelor of Arts in women's studies emphasizes breadth, depth, and interdisciplinary study. Objectives of the major include knowledge of the field's history, facility with major theoretical debates, knowledge of feminist issues outside the United States and Western Europe, knowledge of one major area of feminist scholarly concern, and familiarity with debates in other areas. Students apply this knowledge to an individual research project in their senior year.

The B.A. in women's studies is awarded upon successful completion of at least 35 s.h. of course work culminating in the senior research seminar. Other requirements for the major include 2 s.h. of practicum work that reflects the importance of community needs and current social issues in framing questions of women's studies scholarship and in assessing the usefulness of relevant research.

Students may declare the major in women's studies at any time. They are advised by the Academic Advising Center until they have completed 131:010 or 131:055. Transfer credit is evaluated case-by-case and is limited to 9 s.h.

Requirements

Students complete the undergraduate core and 18 s.h. of elective course work.

UNDERGRADUATE CORE

The B.A. core consists of six courses (17 s.h.). Two introductory courses (131:010 and 131:055) are prerequisites for all other courses in the major; they orient students to the major conceptual areas that constitute women's studies as an interdisciplinary field. Gender, Race, and Class (131:055) introduces basic issues of race, class, and gender systems in the United States and provides a foundation for the majors in women's studies or African American world studies. Students take 131:199 Senior Research Seminar in their last semester.

The undergraduate core is as follows:

- 131:010 Introduction to Women's Studies 3 s.h.
- 131:055 Gender, Race, and Class in the U.S. 3 s.h.
- *131:105 Women's Studies Practicum 2 s.h.
- 131:151 Feminist Theory 3 s.h.
- A women's studies course with an international focus 3 s.h.
- 131:199 Senior Research Seminar 3 s.h.

*Students who took 131:010 Introduction to Women's Studies prior to fall 2004 for 4 s.h. need only 1 s.h. of practicum work.

ELECTIVES

In addition to the undergraduate core, each student chooses 18 s.h. (six courses) of additional course work, 12 s.h. of which must be upper-level courses chosen in consultation with the student's advisor. Only 6 s.h. of the elective courses may be chosen from lower-level courses, and those must be courses with women's studies course numbers.

Students are encouraged to pursue a course of study that emphasizes both breadth and depth. Students should choose a focus area of at least three or four courses in an area in which they would like to gain deeper knowledge. The area may be within a specific discipline, such as literature, anthropology, or history, which will be especially useful for double majors. Students may count up to three courses they have taken to complete a second major toward the major in women's studies.

The specialization area need not be limited to a traditional discipline. Students may seek more specialized education in fields such as sexuality studies or international issues. Breadth also is important; advisers direct students who have taken several courses in one area to take additional electives in another area.

Electives may be chosen from courses offered or cross-referenced in women's studies or from courses in other departments approved for the major by the Department of Women's Studies. A list of approved courses is available from the department and on the department's web site.

Students may request permission to use other upper-level courses as women's studies electives. At least half of the course content must address gender, and as much possible, the student's written and other work in the course should focus on gender. More information on requesting permission to use a course is available from the department.

Four-Year Graduation Plan

The Women's Studies Department does not participate in the four-year graduation plan. Students are encouraged to design a graduation plan with their women's studies adviser.

Honors

Qualified students may earn the B.A. with honors in women's studies. Students who wish to graduate with honors must be members of the University Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information). They also must maintain a g.p.a. of at least 3.50 in the major. Honors students write an honors thesis as part of their senior research seminar.

Minor

Undergraduate students may complete a minor in women's studies by taking 15 s.h. of course work chosen from courses associated with the department, with a g.p.a. of at least 2.00. The minor must include 131:010 Introduction to Women's Studies. It also must include 12 s.h. of 100-level course work; or 131:055 Gender, Race, and Class in the U.S. plus 9 s.h. of 100-level course work. It is strongly recommended that students include 131:151 Feminist Theory.

Students may not count more than 3 s.h. of course work used to complete a major toward requirements for the Women’s Studies minor.

Concentration for Nonmajors

Nonmajors who are interested in women's studies but who chose not to pursue a minor in the department can take a set of electives.

Students contemplating a concentration in women's studies are advised to take 131:010 Introduction to Women's Studies.

Graduate Study

Doctor of Philosophy

The Ph.D. program in Women's Studies is committed to feminist research, teaching, and scholarship. It emphasizes the application of theoretical and methodological models developed from the broad range of cultural issues that affect both women and men. While pressing for inclusion of feminist critiques and theories in the curricula of specific disciplines, it also advocates training in interdisciplinary, international feminist approaches.

Students who complete their Ph.D. at Iowa are expected to gain a firm grounding in the history of feminist inquiry, histories of feminisms, and feminist pedagogy; the ability to move easily among the disciplines in their research and teaching; and a broad understanding from interdisciplinary work balanced with depth from concentration in a single discipline.

To prepare students to seriously contest traditional practices in a discipline, the program requires a minimum of 18 s.h. in one discipline or interdisciplinary field of inquiry, and close work with a faculty member from that discipline on relevant research projects.

Curriculum

The doctorate requires a minimum of 72 s.h. beyond the B.A. All Ph.D. students must complete the following.

Graduate core 15 s.h.
Gender and diversity core 9 s.h.
Women's studies electives 18 s.h.

Course work in a single discipline or area (e.g., anthropology, history, literature) 18 s.h.
Dissertation 9-12 s.h.

GRADUATE CORE

- 131:200-201 Foundations for Feminist Inquiry I-II 6 s.h.
- 131:203 Seminar (taken during the first semester) 1 s.h.
- 131:205 Graduate Practicum 1 s.h.
- 131:210 Feminist Pedagogy (required of all women's studies teaching assistants) 3 s.h.
- 131:228 Readings: History of Feminisms (Ph.D. candidates should enroll for 3 s.h.) arr.

QUALIFYING PAPER

Students complete a qualifying paper in the second semester of their second year in residence, demonstrating their theoretical and methodological strengths and their intellectual development in feminist studies.

COMPREHENSIVE EXAMS

Once students have successfully completed their qualifying papers, they are eligible to begin the three comprehensive exams that show competence in their chosen specializations, as
recommended by their advisory committee and approved by the faculty members who oversee the Ph.D. program. The exams may be submitted any time following completion of the qualifying paper, but generally they are expected after the third year. When they are satisfactorily completed, the student is admitted to candidacy and can begin work toward the dissertation.

**Admission Requirements**

All applicants must have a bachelor's degree with a g.p.a. of at least 3.00. Applicants must demonstrate a commitment to feminist scholarship. A writing sample, a statement of purpose in pursuing the Ph.D., transcripts from all undergraduate and graduate work undertaken, GRE General Test scores, and three letters of recommendation from faculty members familiar with the applicant's academic work must be submitted before an application can be considered.

International applicants must submit a current TOEFL score.

The statement of purpose should describe how the applicant sees herself or himself in the world and why she or she wants to pursue graduate study in general and women's studies in particular. The department uses the statement of purpose and the sample of academic writing to evaluate applicants' ability to present their views forcefully and gracefully, as well as their ability to analyze, critique, and interpret.

The department does not offer a master's degree.

**Financial Support**

Most students receive financial support for at least their first two years in the program. Research assistantships and teaching assistantships also are available through other departments. Students who hold assistantships of least their first two years in the program.

Most students receive financial support for at least their first two years in the program. Research assistantships and teaching assistantships also are available through other departments. Students who hold assistantships of least their first two years in the program.

**Courses**

### Core Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>131:010</td>
<td>Introduction to Women's Studies</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>131:049</td>
<td>Topics in Women's Studies</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>131:055</td>
<td>Gender, Race, and Class in the U.S.</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>131:105</td>
<td>Women's Studies Practicum</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>131:135</td>
<td>Women, Medicine, and Society</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>131:151</td>
<td>Feminist Theory</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>131:153</td>
<td>Feminist Cultural Studies</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>131:179</td>
<td>Independent Readings and Research in Women's Studies</td>
<td>1-3 s.h.</td>
</tr>
<tr>
<td>131:198</td>
<td>Honors Senior Thesis</td>
<td>arr.</td>
</tr>
<tr>
<td>131:200</td>
<td>Foundations for Feminist Inquiry</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>131:203</td>
<td>Proseminar</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>131:205</td>
<td>Graduate Practicum</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>131:207</td>
<td>French Theory and the Politics of Gender</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>131:210</td>
<td>Feminist Pedagogy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>131:215</td>
<td>Women's Issues: A Transnational View</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>131:257</td>
<td>Gender and Economic Development</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>131:279</td>
<td>Independent Study</td>
<td>arr.</td>
</tr>
</tbody>
</table>

### Cross-Referenced Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>131:018</td>
<td>Women and Society</td>
<td>3-4 s.h.</td>
</tr>
<tr>
<td>131:041</td>
<td>Gender Roles and Communication</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>131:078</td>
<td>Women, Sport and Culture</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>131:152</td>
<td>Motherhood and Reproduction</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>131:154</td>
<td>Anthropologies and Sexualities</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>131:158</td>
<td>Sexuality and Culture</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>131:161</td>
<td>Women in Literature</td>
<td>2-3 s.h.</td>
</tr>
</tbody>
</table>
131:02 Latin American Women Writers 3 s.h.
Same as 035:144.

131:05 Women Writing Culture 3 s.h.
Feminist ethnography and other kinds of feminist narratives that "write culture" while pushing the boundaries of how anthropologists define ethnography. Prerequisite: 113:003 or 131:010. Same as 113:180.

131:07 Gender and Sexuality in French Cinema 3 s.h.
Cultural, historical, semiotic approach to studying construction of gender identity and sexual codes in French cinema from 1920s to present. Prerequisite: 009:111 or 048:001 or 048:002 or 131:010 or consent of instructor. Same as 099:148, 048:167.

131:08 French Women Writers 3-4 s.h.
Literature by 20th-century French women writers; modern French feminism; philosophy; language and gendered subjectivity, feminine writing, racial, class, and national identity. Same as 009:180.

131:09 Changing Concepts of Women in Literature 3 s.h.
Textual, cultural changes in concepts of women presented in and throughout periods of literary history; changes in novel conventions for portraying women from 18th through 19th centuries, or changes in dramatic presentation of women from Middle Ages through the Renaissance. Same as 008:169.

131:171 Women in America: Colonial Period-1870 3 s.h.
American history through women's eyes; emphasis on interaction of biology, economics, politics, ideology; how traditional historical generalizations change when women's experience is considered, legal history, women's education. Same as 16A:171.

131:172 Women in America: 1870-Present 3 s.h.
From passage of Fourteenth Amendment to present; emphasis on suffrage movement, economic roles, educational patterns. Same as 16A:172.

131:174 Gender and Society in the U.S. 1940-Present 3 s.h.
Same as 16A:174.

131:175 Gender and Development Studies 3 s.h.
Consequences of economic and political development on women of Latin America, Africa, Asia; current theoretical perspectives, including Marxist, feminist, postmodern approaches. Prerequisite: consent of instructor. Same as 113:175.

131:181 Society and Gender in Europe, 1200-1789 3 s.h.
How ideas about community were influenced by gender ideologies inscribed in patterns of authority—household, church, state; ranges of human endeavor—intellectual, psychological, biological; community organization—society, economic, legal, sexual. GE: foreign civilization and culture. Same as 186:125.

131:182 Society and Gender in Europe, 1750-Present 3 s.h.
Social structures, gender roles in modern Europe; changes in politics, social organization, social relationship of sexes (education, sexuality, occupation), forms of social protest (feminism, etc.). Same as 186:148.

131:188 Prose by Women Writers 3 s.h.
Nonfiction, largely contemporary, style and content, redescription of form and tradition of essay; Woolf, Didion, Dillard, Walker. Same as 008:188.

131:194 Introduction to Feminist Criticism 3 s.h.
Feminist literary criticism of the past 20 years, emphasis on intersection of race, colonialism, sexuality, gender issues. Prerequisite: 131:010 or equivalent for undergraduates. Same as 008:104, 048:104.

131:197 Gender in Chinese Literature and Culture 3 s.h.
Changing image of woman in modern Chinese history through analysis of literary texts, films by women authors of different periods. Same as 039:197.

131:201 Foundations for Feminist Inquiry II 3 s.h.
Continuation of 131:200. Prerequisite: consent of instructor. Same as 010:201, 036:318.

131:204 Feminist Research Seminar 3 s.h.
Feminist research methodologies; how to conduct original research, write a research proposal and research paper, and read and criticize others’ work. Repeatable. Same as 016:277.

131:220 Seminar: Feminist Anthropology 3 s.h.
Current, traditional anthropological issues from a feminist perspective. Background in feminist theory, anthropology required. Same as 113:220.

131:223 Feminist Medical Anthropology 3 s.h.
Directions feminists have taken in medical anthropological scholarship; focus on ethnographies that have become classics of the genre and on influential theoretical and applied work. Prerequisite: consent of instructor. Same as 113:223.

History of sexuality within the family, its move into the marketplace, social customs and taboos, methods of birth control and abortion, religion, medical and psychological writings, state policies. Same as 016:225.

131:228 Readings: History of Feminisms arr.
131:231 Politics and the Body 3 s.h.
Public sphere theory and other conceptions of the political through examination of the category of the body; logics of abstraction in conceptions of the political that allow for the privileging of some bodies and the marginalization of others.

131:233 Readings: Women, Men, and Gender in Modern Europe arr.
131:245 Feminist Cultural Studies 3 s.h.

131:245 Seminar: Feminist Ethnography 3 s.h.
Feminist critiques of traditional ethnographic analysis of ethnographies informed by contemporary feminism. Prerequisite: consent of instructor. Same as 113:221.

131:246 Women Writers of Latin America 3 s.h.
Same as 035:246.

131:250 Topics in Women’s Studies 3 s.h.
Special topics in women’s studies.

131:254 History of Women in Sports 3 s.h.
Women’s sport involvement from ancient times to present; focus on social class, ethnicity, gender, race, value, media-opinion, economic considerations, political events, educational philosophies that have influenced women’s participation. Same as 028:279.

131:256 Gender Stratification Seminar 3 s.h.
Occupational gender segregation, gender gap in pay, role of family caregiving in women’s lower pay, devaluation of caregiving work and comparable work. Same as 034:256.

131:264 Postcolonial Feminist Theory 3 s.h.
Role of colonial histories and postcolonial legacies on past and contemporary relations of power in varied geographical contexts, through interdisciplinary feminist perspective; processes of gender and racialization relative to uneven global flows of media, capital, people. Prerequisite: 131:151 or cultural studies course. Same as 010:264.

131:266 Changing Families and Public Policy 3 s.h.
Current sociological research on public policies that affect family life and well-being, divorce and custody policies, teen pregnancy and abortion, family poverty, child care and work/family policies. Same as 034:266.

131:270 Readings in the History of Women and Gender in the U.S.A. arr.
Older literature as well as work of last decade; focus on use of gender as an analytical device, changing social relations of the sexes over long periods of time, concept of separate spheres, sex segregation in the workplace, gender and deviance, feminism and politics, women’s history as intellectual history. Same as 016:270.

131:283 Feminist Theory: Historians’ Perspectives arr.

Same as 016:284.

Same as 016:287, 129:287.

131:290 Feminist Perspectives on Biology and Culture 3 s.h.
Physical anthropology and prehistoric archaeology from feminist perspective; emphasis on gender investigation methods of the past; role of women investigators, and criticism of male-centered theories for human evolution and prehistoric events, such as the domestication of plants. Prerequisite: consent of instructor. Same as 113:290.

MAJORS OFFERED WITH OTHER COLLEGES

The College of Liberal Arts and Sciences works with the Tippie College of Business, the College of Education, and the Carver College of Medicine to offer several undergraduate majors.

Faculty members from the Department of Economics in the business college provide advising and teach courses students need to earn a B.A. or B.S. in economics. Faculty members from the Departments of Biochemistry and Microbiology in the Carver College of Medicine provide courses and advising for students in the undergraduate programs in biochemistry and microbiology.

Faculty members from the College of Education provide major course work and advising for the B.S. in Science Education. They also support the B.A. and B.S. in elementary education. The undergraduate elementary education program is designed to prepare students to teach kindergarten through sixth grade. Elementary education students complete the College of Liberal Arts and Sciences General Education Program. They also complete course work in education foundations and methods and in one of the following areas of specialization: art, early childhood, English language arts, history, mathematics, music, reading, science, social science, or special education.

Students interested in pursuing a degree in elementary education must first be admitted to the College of Liberal Arts and Sciences. Admission to the College of Education’s elementary education program is not guaranteed. In order to be considered for admission to the elementary education program, undergraduates must complete a minimum of 30 s.h. of course work with a cumulative g.p.a. of at least 2.70. All students must submit Praxis I test scores with their application to the Teacher Education Program (TEP).

Students who begin their study in the College of Liberal Arts and Sciences also can earn undergraduate degrees in Clinical Medical Sciences, Nuclear Medicine Technology, and Radiation Sciences from the Carver College of Medicine.

Undergraduate programs

The College of Liberal Arts and Sciences administers undergraduate programs and grants undergraduate degrees in biochemistry. The Department of Biochemistry offers programs of study leading to both Bachelor of Science and Bachelor of Arts degrees. The requirements are outlined below.

Students choose advanced science electives to supplement biochemical studies or as part of a minor or a double major. Science elective courses numbered below 100 need an adviser's approval to be counted toward the degree.

Transfer credit for biochemistry courses requires the approval of an undergraduate adviser in biochemistry.

Bachelor of Science

The B.S. degree program in biochemistry prepares students to work in positions that require a mastery of general biochemistry. It is also excellent preparation for graduate study in biochemistry and related sciences or for study toward a professional degree in the health sciences.

The B.S. degree in biochemistry requires 73 s.h. in addition to completion of the College of Liberal Arts and Sciences General Education Program. The required courses are as follows.

All of these:

002:010 002:011 Principles of Biology I-II 8 s.h.
004:011 004:012 Principles of Chemistry I-II 8 s.h.
22M:025 22M:026 Calculus I-II 8 s.h.
099:001 099:002 Introductory Physics I-II 8 s.h.
099:009 Orientation and Introduction to the Field of Biochemistry 0 s.h.
099:101 Technical Communication in Biochemistry 1 s.h.
099:120 Biochemistry and Molecular Biology I 3 s.h.
099:130 Biochemistry and Molecular Biology II 3 s.h.

004:121 004:122 College Physics 8 s.h.
004:131 Physical Chemistry I 3 s.h.
004:141 Organic Chemistry Laboratory for Majors (preferred) 3 s.h.

*Students may register for 099:155 only if they have earned an average grade of B or better in 099:120, 099:130, and 099:140 and a grade of B- or better in each of 099:120, 099:130, and 099:140; or have consent of adviser and instructor. Students may register for 099:115 any time.

Students are encouraged to begin research by taking 099:115 Undergraduate Independent Study (may be taken for a total of 6 s.h.). There are no prerequisites. Students independently may arrange to take this course or they may request assistance from an undergraduate adviser.

Bachelor of Arts

The B.A. degree in biochemistry requires 58 s.h. in addition to completion of the College of Liberal Arts and Sciences General Education Program. The required courses are as follows.

All of these:

002:010 002:011 Principles of Biology I-II 8 s.h.
004:011 004:012 Principles of Chemistry I-II 8 s.h.
22M:025 22M:026 Calculus I-II 8 s.h.
029:011 029:012 Introductory Physics I-II 8 s.h.
099:001 Orientation and Introduction to the Field of Biochemistry 0 s.h.
099:101 Technical Communication in Biochemistry 1 s.h.
099:120 Biochemistry and Molecular Biology I 3 s.h.
099:130 Biochemistry and Molecular Biology II 3 s.h.
099:140 Experimental Biochemistry 4 s.h.

Advanced science electives, chosen in consultation with adviser 6 s.h.

One of these sequences:

004:121 004:122 Organic Chemistry I-II 6 s.h.
004:123 004:124 Organic Chemistry for Majors I-II (preferred) 6 s.h.

One of these:

004:131 Physical Chemistry I 3 s.h.
004:241 Biophysical Chemistry I 3 s.h.
004:242 Biophysical Chemistry II 3 s.h.

004:141 Organic Chemistry Laboratory 3 s.h.
004:142 Organic Chemistry Laboratory for Majors (preferred) 3 s.h.

099:140 Experimental Biochemistry 4 s.h.
099:155 Research, Independent Study (senior research) in their programs.

Teacher Licensure

Biochemistry majors, especially those in the B.A. program, may qualify for teacher licensure by taking additional courses in teacher education. Students should consult with an adviser in the College of Education.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to graduate from the Bachelor of Science and Bachelor of Arts degrees. The requirements are outlined below.

Students choose advanced science electives to supplement biochemical studies or as part of a minor or a double major. Science elective courses numbered below 100 need an adviser's approval to be counted toward the degree.

Transfer credit for biochemistry courses requires the approval of an undergraduate adviser in biochemistry.

Bachelor of Science

Before the third semester begins: 004:011 and 004:012, 22M:025, 099:001, and at least one-quarter of the semester hours required for graduation.

Before the fifth semester begins: the courses listed above, plus 002:010 and 002:011, 004:121, 004:122, and 004:141; 22M:026; and at least one-half of the semester hours required for graduation.

Before the seventh semester begins: the courses listed above, plus 029:081 and 029:082, 099:120, 099:130, and 099:140, two science electives, and at least three-quarters of the semester hours required for graduation.

Before the eighth semester begins: the courses listed above, plus 004:131 or 004:132 or 099:241 or 099:242, a science elective, and at least 3 s.h. of 099:155.

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

Bachelor of Arts

Before the third semester begins: 004:011 and 004:012; math through 22M:026 or higher; 099:001; and at least one-quarter of the semester hours required for graduation.

Before the fifth semester begins: the courses listed above, plus 002:010 and 002:011; 004:121, 004:122, and 004:141; 22M:026; and at least one-half of the semester hours required for graduation.

Before the seventh semester begins: the courses listed above, plus 029:081 and 029:082, 099:120, 099:130, and 099:140, two science electives, and at least three-quarters of the semester hours required for graduation.

Before the eighth semester begins: the courses listed above, plus 004:131 or 004:132 or 099:241 or 099:242, a science elective, and at least 3 s.h. of 099:155.

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate.
Graduate students in the biophysical emphasis
Electives 6 s.h.

142:215 Molecular Biology of Gene Expression 3 s.h.
Electives 9 s.h.

Graduate students in the molecular emphasis also must take the following:

099:241 Biophysical Chemistry I-II 3 s.h.
099:242 Biophysical Chemistry I-II 3 s.h.

Electives 9 s.h.

Graduate students in the molecular emphasis also must take the following:

099:241 Biophysical Chemistry I 3 s.h.
or
099:242 Biophysical Chemistry II 3 s.h.

142:215 Molecular Biology of Gene Expression 3 s.h.
Electives 9 s.h.

Students choose research laboratories for Ph.D. thesis research after promotion to a second year of study and begin their thesis projects. They take courses that supplement and complement their interests and preparation, including the following required courses.

050:270 Responsible Conduct in Research 0 s.h.
099:237 Topics in Biochemistry 2 s.h.
099:282 Seminar 0-1 s.h.

Research Biochemistry (099-292) and elective science courses numbered 100 or above in other departments satisfy the remaining course requirements.

Students take the comprehensive examination before the end of June in their second year, after which they are admitted formally to degree candidacy and begin to concentrate on thesis research. The program culminates in students' successful defense of their completed thesis work before an examining committee.

In addition to meeting these requirements and those of the Graduate College, students are expected, as part of their training, to assist in teaching biochemistry for two or three semesters.

Throughout the program, students are associated with small research seminar groups and receive close personal attention from the biochemistry faculty members who serve as research advisers.

Admission

The graduate program in biochemistry is flexible enough to accommodate students with bachelor's degrees in any of the biological, biochemical, or physical sciences. Appropriate preparation includes one-year, college-level courses in organic and physical chemistry, biology, physics, and mathematics through calculus. Students are expected to have had one or more introductory courses in biochemistry.

Minimum requirements for admission to the department include an undergraduate g.p.a. of at least 3.00 and acceptable scores on the verbal, quantitative, and analytical sections of the Graduate Record Examination (GRE) General Test. Candidates are more competitive if they also submit scores for the advanced examinations in chemistry, biology, or biochemistry and molecular and cell biology.

Financial Support

Students admitted to the Ph.D. program in biochemistry routinely receive a stipend and tuition support.

Honors

Qualified students may earn an honors degree in biochemistry. They must be members of the University Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information). Honors students in biochemistry must complete 099:155 Research, Independent Study. They must present their research results in a report written in the form of a journal article and in an oral report presented at a special open departmental seminar.

Combined Programs

Students, especially those in the B.A. program, may include courses from other disciplines, such as business, prelaw, psychology, or journalism. This prepares them for one of the many vocations on which biochemistry has an impact.

Graduate Program

The Carver College of Medicine and the Graduate College coordinate the graduate program in biochemistry and other biosciences; graduate degrees are granted through the Graduate College. See the Carver College of Medicine Introductory section and the Graduate College section of the Catalog for general information about study in medicine and graduate study at the University.

The Department of Biochemistry offers a program of study leading to the M.S. and Ph.D. degrees. Students admitted to graduate program in biochemistry usually pursue the Ph.D. degree. The department also offers the opportunity for qualified students to pursue a combined program leading to the M.D./Ph.D. (medical scientist training).

The focus of the graduate program is on the individual student. Students choose from three curricula to satisfy requirements for the degree: standard, biophysical emphasis, or molecular emphasis.

In the first year, students engage in formal course work and tutorial laboratory experiences that serve as the basis for selecting a topic for thesis research. They spend half their time in courses and the other half working in four different faculty laboratories (099-261 Research Techniques), learning research techniques in the context of ongoing research.

Graduate students in all three curricula take the following courses.

099:282 Seminar 0-1 s.h.
156:201 Principles in Molecular and Cell Biology 4 s.h.

Graduate students in the standard curriculum also must take the following.

099:241-099:242 Biophysical Chemistry I-II 6 s.h.
142:215 Molecular Biology of Gene Expression 3 s.h.
Electives 6 s.h.

Graduate students in the biophysical emphasis also must take the following.

099:241-099:242 Biophysical Chemistry I-II 6 s.h.
Electives 9 s.h.

Graduate students in the molecular emphasis also must take the following.

099:241 Biophysical Chemistry I 3 s.h.
or
099:242 Biophysical Chemistry II 3 s.h.

142:215 Molecular Biology of Gene Expression 3 s.h.
Electives 9 s.h.

Research

The department's current research interests include the study of protein structure and function, protein folding, DNA bending, complex carbohydrate structure and function, regulation of gene expression, mechanisms of transcription and replication, enzyme reaction mechanisms, intracellular signaling, differentiation, and membrane determinants of cell shape and motility. The department's web site provides more detailed information about faculty research interests.

Facilities

Many of the Department of Biochemistry's research and teaching facilities are located on a single floor in the Bowen Science Building, where the Departments of Anatomy and Cell Biology, Microbiology, Pharmacology, and Physiology and Biophysics are also located. Several of the department's research groups are located in the adjacent Medical Education and Biomedical Research Facility.

The University of Iowa maintains a number of central research support facilities and equipment that promote campuswide interactions between research groups. These include the facilities for electron microscopy, fermentation, image analysis, high field NMR, high resolution mass spectrometry, and academic computing (through Information Technology Services). The Carver College of Medicine operates other facilities available to biochemistry researchers for nuclear magnetic resonance, flow cytometry, DNA synthesis, tissue culture hybridoma, gene transfer, x-ray analysis, and transgenic and gene targeting.

Individual faculty research laboratories are well-equipped for modern research, and there are many common-use laboratories, including instrument rooms, a reading room, cold rooms, tissue culture areas, preparation rooms, and a stockroom. Research is supported by staff in instrument shops, animal quarters, photography and illustration service, and by office staff, stockroom supervisors, and a purchasing agent.

Together, the department and the central support facilities provide virtually all of the equipment required for modern biochemical research. Examples of such equipment include analytical and preparative ultracentrifuges; fluorescence, optical rotatory dispersion, high-field NMR, ultraviolet-visible, and rapid kinetic instruments; amino acid analyzers and protein sequencers, gas chromatographs, preparative high performance liquid chromatographs, liquid scintillation counters, electrophoresis equipment, instrumentation for protein X-ray crystallography and microcalorimetry, and automated DNA sequencers.

The department maintains a reading room stocked with primary books and journals used by biochemists. The Hardin Library for the Health Sciences is a large, complete library located on the health sciences campus. Excellent resources also are provided by other departmental branches of the University Libraries system and by computer access to Bibliographic Retrieval Services.
Courses

099:001 Orientation and Introduction to the Field of Biochemistry 0 s.h.
Biochemistry and its application to other areas of basic sciences; biochemical studies, research, careers.

099:101 Technical Communication in Biochemistry 1 s.h.
Practical aspects of writing formal scientific papers and making oral presentations on technical topics. Prerequisites: 099:120 or 099:130 or 099:140 or consent of instructor; and junior or senior standing.

099:110 Biochemistry 3 s.h.
Basic concepts in modern biochemistry and molecular biology; understanding of life processes in molecular terms.

099:115 Undergraduate Independent Study arr.
Experience in an active biochemistry research lab, learning and performing experiments relevant to the current projects in that lab; research experience in preparation for meeting the requirements for 099:151, arranged in advance by student and faculty member. Prerequisite: first-year, sophomore, or junior standing.

099:120 Biochemistry and Molecular Biology I 3 s.h.
Structures of nucleic acids, proteins, carbohydrates, lipids, and their participation in cellular transport, catalysis, oxidative reactions; first course of two-semester sequence that concludes with 099:130. Prerequisites: two semesters of general chemistry and one of organic chemistry. Recommended: 002:010, 002:011, and an additional organic chemistry course.

099:130 Biochemistry and Molecular Biology II 3 s.h.
Metabolism of lipids and nitrogen-containing compounds; regulation and integration of metabolism; information transfer in procaryotes and eucaryotes, recombinant DNA techniques; chemistry and enzymology of replication, transcription, translation, cell transformation, and regulation of gene expression. Prerequisite: 099:120.

099:140 Experimental Biochemistry 4 s.h.
Quantitative and qualitative experiments on identification, fractionation, and characterization of constituents of biochemical systems; use of modern instruments and techniques for spectrophotometry, chromatography, electrophoresis, centrifugation, and radioisotope studies; emphasis on experimental design and interpretation. Prerequisites: 004:016 or 004:020, and 099:120.

099:155 Research, Independent Study 2-6 s.h.
Independent study and research in areas of interest to the student, arranged in advance by student and biochemistry faculty member. Prerequisites: 099:120, 099:130, and 099:140.

099:161 Biochemistry for Dental Students 4 s.h.
Concepts of biochemistry and their application to understanding of clinical problems. Prerequisites: 099:121 or consent of instructor; and dental student standing or consent of instructor. Recommended: 204:122.

099:162 Biochemistry for Pharmacy Students 4 s.h.
Concepts of biochemistry and their application to understanding of clinical problems. Prerequisites: 099:121 or consent of instructor, and pharmacy student standing, or consent of instructor. Recommended: 004:122.

099:163 Medical Biochemistry 4 s.h.
Concepts of biochemistry; their application to understanding clinical problems. Prerequisite: medical student standing.

099:164 Biochemistry for Physician Assistant Students 3 s.h.
Aspects of general biochemistry necessary for understanding the biochemical basis of human disease; analysis of appropriate clinical cases. Prerequisite: 099:110 or equivalent biochemistry survey.

099:226 Enzyme Kinetics and Bioorganic Mechanisms 1-2 s.h.
Principles and applications of steady-state and transient enzyme kinetics; mechanisms of catalysis of biochemical reactions. Prerequisite: 099:120 or consent of instructor.

099:237 Topics in Biochemistry 1-2 s.h.
Topics in the physical-chemical or molecular biology areas of biochemistry. Repeatable. Prerequisite: 099:130.

099:241 Biophysical Chemistry I 3 s.h.
Classical and modern approaches to biochemical systems; application of thermodynamics, equilibria, spectrophotometry, X-ray crystallography to study of structure and function of macromolecules. Prerequisites: one year of biology and consent of instructor. Recommended: course in physical chemistry.

099:242 Biophysical Chemistry II 3 s.h.
Equilibrium and kinetic measurements of proteins obtained using absorption, fluorescence and dichroic spectrometry, electrophoresis, mass spectrometry, ultracentrifugation, and chromatography; enzyme kinetics and catalysis.

099:261 Research Techniques 1-5 s.h.
Laboratory rotation for first-year graduate students in biochemistry.

099:275 Perspectives in Biocatalysis 1 s.h.

099:282 Seminar 0-1 s.h.
How to evaluate reports of scientific investigations critically; techniques for presenting scientific information.

099:292 Research Biochemistry arr.
Thesis research.

ECONOMICS

Chair: Marylynne Beth Ingram
Professors: William P. Albrecht (Justice Professor of International Business), Gary C. Fethke (Leonard A. Hadley Professor of Leadership), Robert Forsythe (Leonard A. Hadley Chair in Leadership), John W. Fuller, John F. Geweke (Harlan E. McGregor Professor of Economics Theory), Srirati Govindan, Marlyne Beth Ingram, Forrest D. Nelson, George R. Neumann (George Daly Professor of Economics), Harry J. Paarsh, Thomas F. Pogue, B. Ravikumar (Henry B. Tippie Research Professor of Economics), Raymond G. Riezman (Henry B. Tippie Research Professor of Economics), N.E. Savin (George Daly Professor of Economics), Charles H. Whiteman (C. Woody Thompson Professor of Economics), Stephen D. Williamson (Chester A. Phillips Professor of Financial Economics)
Professors emeriti: Carol C. Fethke, Hyman Joseph, Gerald L. Nordquist, Larry Sgonzle, Calvin D. Siebert, S.Y. Wu
Associate professors: Paolo Ghidristato, John L. Solow
Associate professor emeritus: Michael S. Balch Assistant professors: Martina Azzimonti Renzo, Fernando Bertran, April M. Franco, Matthew F. Mitchell, Christopher M. Seet, Galina Verevskaghina

Graduate degrees:

B.A., B.S., B.B.A. in Economics
Graduate nondegree program: minor in Economics
Graduate degrees: M.A., Ph.D. in Economics
Web site: http://www.bsu.uiowa.edu/economics

Economics is the study of how societies allocate limited resources to achieve competing ends. Using both empirical and deductive methods, economics analyzes incentives, constraints, organizational forms, and market forces to understand patterns of production, exchange, and consumption of goods and services. It treats diverse issues such as wealth and poverty, government expenditures and taxation, prosperity and depression, inflation and unemployment, relations between management and labor, economic growth, environmental protection, health care delivery, the war on drug abuse, free trade versus protectionism, U.S. competitiveness in international markets, and the quality of American education.

Undergraduate Programs

The baccalaureate programs in economics provide an excellent educational background for a variety of positions in business and government. Graduates find employment in banking, financial institutions, industrial firms, and trade organizations and in federal, state, and local government agencies dealing with economic policy, regulation, and analysis.

Economics also provides excellent preparation for the study of law and for graduate study in fields such as business management, public administration, hospital and health administration, urban and regional planning, transportation, journalism, political science, and statistics.

The department offers three undergraduate degrees—the Bachelor of Arts (B.A.) and Bachelor of Science (B.S.) in the College of Liberal Arts and Sciences and the Bachelor of Business Administration (B.B.A.) in the Henry B. Tippie College of Business.

The B.A. program is designed to achieve a balance between economic theory, mathematical tools, and field applications. The B.B.A. maintains a similar balance but emphasizes development of analytic tools; it prepares students for graduate work in economics or related business and technical fields. The B.B.A. emphasizes economic foundations of business fields: accounting, finance, marketing, business law, and management.

In planning a program of study, students should be aware that the order in which courses are taken is important; some courses are prerequisites for others. The Handbook for Economics Majors, available from the department office, offers help in planning an economics degree program.

Bachelor of Arts

Requirements for the B.A. with a major in economics are as follows.

All of these:

06E:071 Statistics for Strategy Problems 3 s.h.
22M:017 Calculus and Matrix Algebra for Business (students who have taken 22M:021 Calculus and Modeling I or 22M:025 Calculus I or 22M:031 Engineering Mathematics I: Single Variable Calculus may use that class) 4 s.h.
22S:008 Statistics for Business 4 s.h.

A total of 21 s.h. in 100-level economics theory and field courses, as follows.

All of these:

06E:104 Microeconomic Theory 3 s.h.
06E:105 Macroeconomics 3 s.h.
Two advanced field courses chosen from 06E:170 through 06E:189 6 s.h.
Three additional courses chosen from 06E:111 through 06E:189 9 s.h.

Unless otherwise approved by the director of undergraduate studies, no more than 6 of the 21 s.h. required in 100-level economics courses may be satisfied by transfer or correspondence credit. Students should take 06E:104 and 06E:105 at The University of Iowa.

Prerequisites

Most 100-level courses in economics have as prerequisites both 06E:001 and 06E:002, or consent of instructor; 06E:010, or consent of instructor, are required for 06E:104; and 06E:002 and 02M:017, or consent of instructor, are required for 06E:105. Course 22S:008 is prerequisite to 06E:071; 06E:104,
and/or 06E:105 are prerequisite to courses numbered above 06E:170.

**Bachelor of Science**

The B.S. requires the following.

One of these sequences:

- 22M:021-22M:022 Calculus and Modeling I-II 8 s.h.
- 22M:025-22M:026 Calculus I-II 8 s.h.

One of these:

- 22S:120 Probability and Statistics 4 s.h.
- 22S:130-22S:131 Introduction to Mathematical Statistics I-II 6 s.h.

A total of 21 s.h. in 100-level economics theory and field courses, as follows.

All of these:

- 06E:104 Microeconomic Theory 3 s.h.
- 06E:105 Macroeconomics 3 s.h.
- 06E:184 Introduction to Econometrics 3 s.h.

Two additional advanced field courses numbered from 06E:170 through 06E:189 6 s.h.

Two additional courses chosen from 06E:111 through 06E:189 6 s.h.

Unless otherwise approved by the director of undergraduate studies, no more than 6 of the 21 s.h. required in 100-level economics courses may be satisfied by transfer or correspondence credit. Students should take 06E:104 and 06E:105 at The University of Iowa.

For students planning to pursue a graduate degree in economics, 22S:130 and 22S:131 are recommended in lieu of 22S:120.

**PREREQUISITES**

Some of the prerequisites listed under “Bachelor of Arts” apply: either 22M:022 or 22M:026 is prerequisite to 22S:120 and 22S:130; and either 22S:120 or 22S:131 is prerequisite to 06E:184.

**Bachelor of Business Administration**

In addition to the common requirements of the Henry B. Tippie College of Business, the B.B.A. in economics requires 18 s.h. in 100-level economics courses, including the following. Students should take 06E:104 and 06E:105 at The University of Iowa.

All of these:

- 06E:104 Microeconomic Theory 3 s.h.
- 06E:105 Macroeconomics 3 s.h.

Two field courses numbered from 06E:170 through 06E:189 6 s.h.

**Four-Year Graduation Plan**

**B.A. and B.S. Students**

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

These checkpoints apply to both the Bachelor of Arts and the Bachelor of Science.

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

**Before the fifth semester begins:** at least one-half of the semester hours required for graduation, 06E:001 and 06E:002, and the math component of quantitative courses required for major

**Before the seventh semester begins:** three-quarters of the semester hours required for graduation, 06E:104 and 06E:105, and one 100-level economics course

**Before the eighth semester begins:** three 100-level economics courses, including one advanced course (numbered 06E:170 through 06E:189), and the statistics component of the quantitative course requirement

**DURING THE EIGHTH SEMESTER:** enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

**B.B.A. Students**

For information about four-year graduation for B.B.A. students, contact the Undergraduate Program Office or see “Four-Year Graduation Plan” in the Tippie College of Business section of the Catalog.

**HONORS**

**B.A. and B.S. Students**

Students in the College of Liberal Arts and Sciences working toward a B.A. or B.S. with an economics major are encouraged to take part in the honors program in economics, which gives high-achieving students the opportunity to pursue special research interests. Honors students in economics must be members of the University Honors Program, which requires them to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information).

To enter the honors program, students must have completed 06E:104 Microeconomic Theory and 06E:105 Macroeconomics before the senior year. Honors students typically register for 06E:194 Honors Seminar in the fall of the senior year. Then they define and complete a research project under the guidance of a supervising faculty member, earning up to 6 s.h. in 06E:195 Senior Thesis in Economics. The thesis is presented orally to a committee of three faculty members, typically the undergraduate honors adviser, the student’s research supervisor, and a third faculty member agreed upon by the student and the honors adviser.

Interested students should consult the honors adviser by the second semester of their junior year.

**B.B.A. Students**

The Tippie College of Business offers qualified economics students the opportunity to pursue honors study. For more information, contact the Undergraduate Programs Office or see “B.B.A. with Honors” in the Tippie College of Business section of the Catalog.

**MINOR**

The minor in economics requires at least 15 s.h. in economics with a g.p.a. of at least 2.00; 12 of the 15 s.h. must be taken at The University of Iowa in courses numbered above 06E:100.

**Course Work for Nonmajors**

Students in the College of Liberal Arts and Sciences may wish to use economics courses as part of the General Education Program or other majors. Principles of Microeconomics (06E:001) and Principles of Macroeconomics (06E:002) are approved for General Education in social sciences; they introduce the broad field of economics and the specialized topics of upper-division courses. The intermediate theory courses in microeconomics (06E:104) and macroeconomics (06E:105) provide a deeper foundation in the core theories and methods of the discipline. They serve as preparation for upper-division field courses or as terminal courses in an economics study plan.

Course work in economics can be related to majors in many other fields—for example, history majors might take 06E:178 American Economic History; political science majors could elect 06E:119 Economics of the Government Sector and 06E:125 International Economics; global studies majors, 06E:133 Environmental and Natural Resource Economics; pre-law students, 06E:171 Antitrust: Legal and Economic Analysis and 06E:172 Law and Economics; mathematics and engineering majors, 06E:104 Microeconomic Theory and 06E:187 Introduction to Mathematical Economics; and statistics majors, 06E:184 Introduction to Econometrics. The Handbook for Economics Majors lists economics courses that complement studies in other fields.

A number of students combine related interests by pursuing double majors in economics and another field, such as computer science, geography, global studies, history, mathematics, political science, sociology, or statistics.

**Undergraduate Economics Association**

Students are invited to join the undergraduate Economics Association. The group sponsors programs to help students plan for careers or graduate study and holds social events, special lectures, and round-table discussions. It provides opportunities for students to meet other economics majors and department faculty members.

**Graduate Programs**

**Master of Arts**

The Master of Arts is offered only to students working toward a Ph.D. in economics.
Doctor of Philosophy

The Ph.D. program is designed to provide rigorous training in economic theory, econometrics, and applied economics. The program has six components: a coordinated sequence of core courses, a qualifying examination, a research paper, a set of major field courses, a dissertation proposal and comprehensive examination, and a dissertation. Applications for admission and financial support are considered at any time until February 15 for fall semester enrollment.

CORE SEQUENCE

First Semester

06E:200 Economic Analysis I 3 s.h.
06E:203 Microeconomics I 3 s.h.
06E:204 Macroeconomics I 3 s.h.

Second Semester

06E:201 Economic Analysis II 3 s.h.
06E:205 Microeconomics II 3 s.h.
06E:206 Macroeconomics II 3 s.h.

Third Semester

06E:221 Econometrics 3 s.h.

Fourth Semester

06E:222 Applied Econometrics 3 s.h.

QUALIFYING EXAMINATION

The qualifying examination is normally taken the summer after the first or second year.

RESEARCH PAPER

The research paper is normally completed in the summer after the second or third year.

MAJOR FIELD COURSES

Each student chooses a major area of study in addition to the core courses. The requirement for the major area is a minimum of 24 s.h. of intensive study in a field and in courses that enable students to understand the relationship between their specialty and related fields.

DISSERTATION PROPOSAL AND COMPREHENSIVE EXAMINATION

Students must defend a dissertation proposal in a comprehensive examination within one year of completing the research paper requirement.

DISSERTATION

Submission of the completed dissertation and an oral defense of the dissertation research completes the Ph.D. program.

Joint Ph.D./J.D. Program

The department collaborates with the College of Law in a joint Ph.D./J.D. program.

Special Seminar

Each year the department offers a seminar program that brings eminent economists from other universities and from government to The University of Iowa campus. Presentations by faculty and student members of the department also are featured.

Courses

Primarily for Undergraduates

Note: 06E:001 and 06E:002 may be taken in either order or they may be taken simultaneously; they are approved for General Education in social sciences.

06E:001 Principles of Microeconomics 3-4 s.h.
Organization, workings of modern economic systems; rule of markets, prices, competition in efficient allocation of resources and promotion of economic welfare; alternative systems; international trade. GE: social sciences (except for B.B.A. students).

06E:002 Principles of Macroeconomics 3-4 s.h.
National income and output, employment and inflation; money, credit, government finance; monetary, fiscal policy; economic growth, development; international finance. GE: social sciences (except for B.B.A. students).

06E:007 Contemporary Economic Problems and Policy 3 s.h.
Economic concepts developed and applied to analysis of current social problems, issues, policies; representative topics include jobs versus environment, free trade versus protectionism, the war on drugs, American competitiveness, health care delivery costs and choices.

06E:020 First-Year Seminar 1-2 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

06E:071 Statistics for Strategy Problems 3 s.h.
Continuation of 225:008; working knowledge of statistical techniques, scientific data-based approach to problem formulation and solution, statistical techniques in the context of real data analysis, assessment of defects in statistical analyses, using data for making business decisions, choosing appropriate statistical procedures, developing skill in communicating statistical results to audiences without knowledge of statistics. Prerequisites: 22M:017 and 225:008.

06E:104 Microeconomic Theory 3 s.h.
Economic theory of consumer behavior, producer behavior, role of markets in coordinating economic decisions; conditions for efficient resource allocation by market mechanisms; market imperfections, strategic behavior. Prerequisites: 06E:001 and 22M:017, or consent of instructor.

06E:105 Macroeconomics 3 s.h.
Measurement of national product, unemployment, inflation, and determination of national income, price level; role of stabilization policies, economic growth, dynamics of inflation. Prerequisites: 06E:002 and 22M:017, or consent of instructor.

06E:111 Labor Economics 3 s.h.
Microeconomic analysis of labor markets, related institutions; labor supply decisions made by workers, labor demand decisions made by firms, market equilibrium; economic analysis of unions; returns to education, family decisions. Closed to students who have taken or are taking 06E:175. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:113 Health Economics 3 s.h.
Structure of America's health care industry, economic analysis applied to its problems of production, pricing, distribution; cost-effectiveness, financing of medical costs, role of government. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:117 Money, Banking, and Financial Markets 3 s.h.
Role of money, institutions in determination of income, employment, prices in domestic and world economy. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:119 Economics of the Government Sector 3 s.h.
Economic functions of government in modern economies; economic decision making; budgetary processes; effect of government expenditures, taxation on allocation of resources, distribution of income, economic growth, stability. Prerequisites: 06E:001 and 06E:002, or consent of instructor; closed to students who have taken 06E:176.

06E:125 International Economics 3 s.h.
Modern theories of international trade and investment; role of tariffs and other restrictions of international trade; foreign exchange markets, international monetary arrangements, international economic policy. Prerequisites: 06E:001 and 06E:002, or consent of instructor; closed to students who have taken 06E:173.

06E:129 Economic Growth and Development 3 s.h.
Determinants of rising living standards; accumulation of physical and human capital; predictions of economic growth models compared to observed changes in living standards. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:133 Environmental and Natural Resource Economics 3 s.h.
Environmental and resource use problems; efficient mechanisms and other policies for environmental protection, management of common property resources. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:135 Regional and Urban Economics 3 s.h.
Theory of location and regional development; central place theory; why cities exist and trade with one another; models of land use patterns, rents, empirical tests of models; policy applications. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:141 Economics of American Industries 3 s.h.
Structural evolution; imperfect competition, resource allocation; development of public policy on monopoly; selected industries. Prerequisites: 06E:001 and 06E:002, or consent of instructor; closed to students who have taken 06E:177.

06E:145 Introduction to the Economics of Transportation 3 s.h.
Transportation markets—intercity, rural, urban; transportation modes—rail, highway, air, water; pipelines; issues in environmental and economic regulation, finance, policy, planning, management, physical distribution. Same as 044:133, 102:133.

06E:160 Economics of Families and Households 3 s.h.
Micro- and macroeconomic theory applied to economic decisions of families, households; practical and theoretical issues in income generation, spending and saving decisions, risk management and asset allocation, investments, and intergenerational wealth transfers. Prerequisites: 06E:104 with economics courses and junior or senior standing, or consent of instructor.

06E:164 Economies in Transition 3 s.h.
Emerging markets and newly industrialized nations in Asia, Latin America, the former Soviet Union; developments in these regions over past decades—financial crises, industrialization, economic reform, privatization, impact of globalization, development of human capital, income distribution; role of institutions in the transition from poor to rich nation. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:171 Antitrust: Legal and Economic Analysis 3 s.h.
Topics in federal antitrust policy; merger policy, monopolization, predatory pricing, collusion, vertical restraints, resale price maintenance, enforcement; case law, economics literature. Prerequisites: 06E:104 or 091:208 or consent of instructor. Same as 091:201.

06E:172 Law and Economics 2-3 s.h.
Law examined through analytic tools of microeconomics; impact of legal rules on resource allocation, risk bearing, distribution of economic well-being. Prerequisites: 06E:104 and 06E:105, or consent of instructor.

06E:173 Advanced International Economics 3 s.h.
Neoclassical model of international trade, imperfect competition and international trade and investment, role of trade barriers, regional trade agreements and the World Trade Organization. Prerequisites: 06E:104 and 06E:105, or graduate standing, closed to students who have taken 06E:125.

06E:174 Monetary Economics 3 s.h.
Demand for and supply of money, money's role in economy; empirical studies of money's impact; problems with monetary control. Prerequisites: 06E:104 and 06E:105, or consent of instructor.

06E:175 Economic Analysis of Labor Markets 3 s.h.
Labor supply and demand, investments in human capital, compensating wage differentials, discrimination, long-term contracts, occupational choice, family decisions, unions, immigration. Prerequisites: 06E:104 and 06E:105, elementary calculus and statistics; closed to students who have taken 06E:111.

06E:176 Public Sector Economics 3 s.h.
Economic functions of government in budgetary processes; effects of government expenditures, taxation on resource allocation, income distribution, economic growth and stability. Prerequisite: 06E:104 and 06E:105, or consent of instructor; closed to students who have taken 06E:119.
Microbiology • College of Liberal Arts and Sciences 205

COURSES AND DEGREES

Microbiology

Microbiology is the branch of biological sciences that deals with the smallest living things: bacteria, archaea, fungi, algae, protozoa, and viruses. It is coupled with immunology, the study of the response of higher organisms to foreign substances. Microbiology and immunology are at the forefront of the modern biological revolution. Microbes are often the experimental subjects of scientific research. Some research areas in which both practical and theoretical advances are occurring include the study of microbial species and viruses that infect animals, including man, plants, and other microbes; the use of comparative genomics, gene expression profiling, and recombinant DNA methods to analyze basic biological processes and generate valuable products; the nature and occurrence of microbial life in extreme or unusual environments; microbial synthesis and modification of antibiotics and other natural products; the role of microbes in stabilization of the biosphere by recycling and detoxifying waste products; the genetics and regulation of metabolic processes; and the genetics and regulation of the immune response, including characterization of mechanisms used by bacteria to signal one another and characterization of interactions between different types of immune cells and their targets.

Microbiology is an excellent major for undergraduate students who want a good general education with emphasis on an important and interesting branch of biological sciences. For the

06E:177 Industrial Organization 3 s.h.
Market structure, effects of business practice, informational problems on market structure; appraisal of antitrust policies, government regulation of business. Prerequisites: 06E:104 and 06E:105; closed to students who have taken 06E:141.

06E:178 American Economic History 3 s.h.
Emphasis on role of population, technology. Prerequisites: 06E:104 and 06E:105 for economics majors; 06E:001 and 16A:001 for non-economics majors. Same as 16A:143.

06E:179 History of Economic Thought 2-3 s.h.
Evolution of economics as a social science; ideas of Smith, Ricardo, Malthus, Marx, Marshall, Keynes, and their major critics. Prerequisites: 06E:104 and 06E:105.

06E:184 Introduction to Econometrics 3 s.h.
Single equation linear statistical models, estimation and hypothesis testing, heteroscedasticity, generalized least squares estimation, specification analysis; errors in variables; emphasis on interpretation, application of econometric methods, models, use of computer. Prerequisite: 225:120 or equivalent.

06E:185 Introduction to Mathematical Economics 3 s.h.
Mathematical structure of economic principles, problems, systems. May include constrained optimization, choice under uncertainty, general equilibrium and welfare economics, dynamical systems and control theory, game theory. Prerequisite: 06E:104 or consent of instructor.

06E:189 Topics in Economics 3 s.h.
Varied content. Prerequisite: consent of instructor.

For Advanced Undergraduates

06E:194 Honors Seminar 3 s.h.
Preparation for writing senior honors thesis. Prerequisite: consent of instructor.

06E:195 Senior Thesis in Economics 3 s.h.
Independent research leading to senior honors thesis. Prerequisite: consent of instructor.

06E:196 Readings and Independent Study in Economics 3 s.h.

06E:199 Internship 3 s.h.
Participation in approved internship programs (e.g., Washington Center Internships). Prerequisite: consent of instructor.

Primarily for Graduate Students

06E:200 Economic Analysis I 3 s.h.
Theory of the competitive firm, theory of the consumer, noncompetitive optimization, constrained optimization, comparative statics, introduction to game theory.

06E:201 Economic Analysis II 3 s.h.
Behavior under uncertainty, macroeconomic models; dynamic programming, asset pricing, saving, consumption.

06E:203 Microeconomics I 3 s.h.
Prices, emphasis on problem formulation and solving, economic intuition; producer and consumer behavior; competitive and noncompetitive markets, welfare economics. Offered fall semesters. Prerequisite: 06E:200 or consent of instructor.

06E:204 Microeconomics II 3 s.h.
Economic growth, business cycles, money and inflation. Offered fall semesters. Prerequisite: 06E:201 or consent of instructor.

06E:205 Microeconomics III 3 s.h.
Behavior under uncertainty, general equilibrium and welfare analysis, models with asymmetric information. Offered spring semester. Prerequisite: 06E:203 or consent of instructor.

06E:206 Macroeconomics I 3 s.h.
Dynamic macroeconomic models, stochastic macroeconomics, time consistency equilibrium business cycle theory. Offered spring semesters. Prerequisite: 06E:204 or consent of instructor.

06E:211 Mathematical Economics I 3 s.h.
Convex analysis in economic theory; ordinal and cardinal preference relations; quasiconcave, concave numerical representations; separation principle for convex anti-linear programming, concave programming, Brouwer fixed point theorem; existence of competitive equilibrium. Prerequisite: 06E:205 or consent of instructor.

06E:212 Mathematical Economics II 3 s.h.
Theories of n-person games, noncooperative or cooperative; applications to general economic equilibrium analysis. Prerequisite: 06E:211.

06E:221 Econometrics 3 s.h.
Statistical inference in single and multiple equation stochastic models, models with nonindependent or nonidentically distributed error structure, dynamic models, OLS, GLS, IV, ML estimation; asymptotic distribution theory; exact, asymptotic hypothesis tests. Prerequisite: 225:120 or equivalent.

06E:222 Applied Econometrics 3 s.h.
Empirical problems; multiple linear regression, nonlinear regression, maximum likelihood, hazard functions, univariate and multivariate time series, flexible functional forms. Prerequisite: 06E:221.

06E:223 Econometric Theory I 3 s.h.
Statistical theory underlying econometric inference, emphasis on estimation, hypothesis testing in linear models. Prerequisite: 06E:221.

06E:234 International Business—M.B.A. 3 s.h.
Problems in international business; how to export, how to deal with import competition, international joint ventures; country studies. Prerequisite: consent of instructor.

06E:235 International Trade Theory 3 s.h.
The theory of international trade, including basic models of international trade; capital and labor mobility and trade; protection of international trade; the political economy of international trade; empirical applications of international trade. Prerequisite: consent of instructor.

06E:241 Macroeconomics III 2-6 s.h.
Current research in macroeconomics; development of research topics with emphasis on theoretical and empirical analysis. Prerequisites: 06E:205 and 06E:221.

06E:245 Monetary Theory 2-3 s.h.
Research at the frontier of monetary theory and policy; overlapping generations models, search models of money, representative agent monetary models, intermediation and banking theory; and financial contracts.

06E:250 Labor Economics 3 s.h.
Problems and models, including intertemporal models of labor markets, uncertainty and labor market activity, retirement decisions, economic theories of fertility, economics of discrimination, job search models; economic models of unions, bargaining and strikes, public sector labor markets; determinants of income distribution, emphasis on empirical verification of theory. Prerequisites: 06E:205, and 06E:184 or 06E:221.

06E:271 Industrial Organization 2-4 s.h.
The firm, monopolistic competition, oligopoly and workable competition, industrial organization, nature of equilibrium under uncertainty. Prerequisites: 06E:205 and 06E:211.

06E:272 Economics of Organization 2-4 s.h.
Theoretical design of mechanisms for achieving efficient allocations within organizations, and development of empirical frameworks to implement such mechanisms; applications to problems in industrial organization and labor economics. Prerequisite: 06E:205.

06E:273 The Economics of E-Commerce 3 s.h.
Economic principles applied to simple questions in the information economy and to issues such as pricing, compatibility, intellectual property, how to manage a company's information assets wisely and profitably. Repeatable.

06E:299 Contemporary Topics in Economics 3 s.h.
Topics not offered in other courses. Repeatable. Prerequisite: consent of instructor.

06E:300 Readings in Economics 3 s.h.
Prerequisite: consent of instructor.

06E:301 Thesis in Economics 3 s.h.
Prerequisite: consent of instructor.

Advanced Graduate Seminars

06E:310 Seminar in Economic Theory 3 s.h.
Prerequisite: consent of instructor.

06E:311 Seminar in Economic Theory II 3 s.h.

06E:321 Workshop in Microeconomics 1 s.h.
Prerequisite: consent of instructor.
Undergraduate Program

The College of Liberal Arts and Sciences administers undergraduate programs and grants undergraduate degrees in microbiology.

Bachelor of Science

Undergraduate students majoring in microbiology at The University of Iowa must complete the General Education Program of the College of Liberal Arts and Sciences. They must complete a minimum of 21 s.h. in microbiology to obtain a B.S. degree, including at least 12 s.h. taken at The University of Iowa. All University of Iowa courses must be chosen from those numbered 061:147 and above. No more than 2 s.h. of 061:161 (061:171 for honors students) and no more than 2 s.h. of 061:163 may be counted toward the 21 s.h. requirement. Students may count 061:218, but not 061:220, toward the requirement.

Students may take microbiology courses more advanced than 061:157 General Microbiology only if they receive a grade of C or higher in 061:157 (and have the instructor’s consent for specified courses). Mathematics and science courses required by the department for the B.S. degree may not be taken pass/nonpass.

Microbiology Seminar (061:163) should be taken for credit only once during the senior year. Students are encouraged to take the course for 0 s.h. during other semesters after they have taken 061:157.

Microbiology majors must take the following in addition to required microbiology courses.

- 002:010 002:011 Principles of Biology I-II 8 s.h.
- 004:011 004:012 Principles of Chemistry I-II 8 s.h.
- 004:121 004:122 Organic Chemistry I-II 6 s.h.
- 004:141 Organic Chemistry Laboratory 3 s.h.
- 029:011 029:012 College Physics 8 s.h.
- 099:120 Biochemistry and Molecular Biology I 3 s.h.
- 099:130 Biochemistry and Molecular Biology II 3 s.h.

One of these:
- 22M:016 Calculus for the Biological Sciences 4 s.h.
- 22M:021 Calculus and Modeling I 4 s.h.
- 22M:025 Calculus I 4 s.h.

In addition, the following courses may be recommended for some students.
- 08N:080 Nonfiction Writing 3 s.h.

*171:161 Introduction to Biostatistics 3 s.h.

*Some medical schools require a biostatistics course for admission.

Four-Year Graduation Plan

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

Before the third semester begins: 002:010, 004:011, and 004:012; an approved calculus class; and at least one-quarter of the semester hours required for graduation.

Before the fifth semester begins: 002:011, 004:121, 004:122, and 004:141; 061:157; and at least one-half of the semester hours required for graduation.

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

Before the eighth semester begins: another 10-12 s.h. of course work.

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

Honors

Microbiology majors who are members of the University Honors Program may enroll in the honors program in microbiology. The University Honors Program requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33. Microbiology honors students must also maintain a g.p.a. of at least 3.33 in microbiology courses. The program requires 25 s.h. of course work in microbiology, including 6 s.h. in 061:171 Honors Undergraduate Research in Microbiology, which constitutes an introduction to experimental research. At the end of the research, students present written and oral reports. Students who successfully complete these requirements receive the B.S. degree with honors.

Minor

An undergraduate minor in microbiology requires at least 15 s.h. of credit in microbiology courses with a g.p.a. of at least 2.00. Of these 15 s.h., at least 12 s.h. must be taken at The University of Iowa. All University of Iowa courses must be chosen from those numbered 061:147 and above.

No more than 2 s.h. of 061:161 or 061:171 and 2 s.h. of 061:163 may be counted toward the 15 s.h. requirement. Students may count 061:218, but not 061:220, toward this requirement.

Graduate Programs

The Carver College of Medicine administers graduate programs in microbiology; graduate degrees are granted through the Graduate College. See the Carver College of Medicine introductory section and the Graduate College section of the Catalog for general information about study in medicine and graduate study at the University.

Generally, students admitted to the graduate program pursue the Ph.D. degree. All students admitted as candidates for advanced degrees are expected to assist in departmental teaching.

The objectives of the graduate programs in microbiology are to help students become highly qualified in research and in teaching of microbiology.

Six areas are included in the program: pathogenic bacteriology, microbial genetics, immunology, microbial physiology, animal virology, and bioinformatics. Several of these specialized areas involve interdisciplinary training both within and outside of the department, so students receive broad experience during their course of study.

Interdisciplinary Ph.D. programs in genetics, immunology, and molecular biology also are available.

During their first year, students do not choose a mentor immediately but are advised by the Graduate Student Advisory Committee. During this period, all students rotate in three laboratories of their choice. At the end of the first year, students choose a research supervisor who serves as chair of their advisory committee. This committee is the source of intellectual and research guidance for the student’s training.

The department cooperates with other departments in the various colleges on campus, affording ample opportunity for students to avail themselves of diverse course offerings, seminars, and research programs. For example, courses and seminars in clinical laboratory microbiology, immunology, genetics, cellular and molecular biology, biocatalysis/biotechnology, and electron microscopy are available.

Master of Science

Candidates for the M.S. are required to take a minimum of 12 s.h. of microbiology courses in three of the six different subdisciplines available in microbiology. Students may substitute a course taken previously (at The University of Iowa or elsewhere) for the course requirements, upon obtaining approval from their advisory committee. Additional course requirements or selections depend on students’ interests and the advice of the examining committee. Students must write a thesis based on their own research and defend it satisfactorily in an oral examination. No more than 9 s.h. of credit for thesis research may be counted toward the Graduate College’s minimum requirement of 30 s.h. for the Master of Science.

Doctor of Philosophy

The Ph.D. requires a minimum of 15 s.h. of credit in formal courses for which graduate credit is given. Students may substitute a course taken
Facilities

The department shares the Bowen Science Building with the Departments of Anatomy and Cell Biology, Biochemistry, Pharmacology, and Physiology and Biophysics. Laboratory space and modern equipment are available for teaching and research.

Courses

**061:005 Microbes and Our World** 2 s.h.
Bacteria, viruses, and parasites and their role in shaping human health, industry, current affairs, history.

**061:013 Principles of Infectious Diseases** 5 s.h.
Principles and methods essential to study of microorganisms, their isolation and identification, microorganisms in infectious diseases; current immunology concepts. Prerequisite: medical student standing.

**061:014 Principles of Infectious Diseases—Physician Assistant** 4 s.h.
Principles and methods essential to study of microorganisms, their isolation and identification, microorganisms in infectious diseases; current immunology concepts. Prerequisite: physician assistant student standing.

**061:112 Health Sciences Microbiology** 4 s.h.
Medical microbiology, bacteriology, immunology, pathogenic bacteriology, virology, mycology, parasitology. Prerequisite: pre-pharmacy student standing.

**061:113 Dental Microbiology** 3 s.h.
Medical microbiology, bacteriology, immunology, pathogenic bacteriology, virology, mycology, parasitology. Prerequisite: dental student standing.

**061:147 Survey of Immunology** 4 s.h.
Major features of the evolutionary, ontogenic, and comparative development of innate and adaptive immune systems and their functions at the cellular and molecular levels. Prerequisites: strong background in biology, including physiology. Pre-or corequisite: biochemistry.

**061:157 General Microbiology** 5 s.h.
Principles of microbial diversity, microbial genetics, physiology, and metabolism, pathogenic microbiology, virology, immunology, industrial and environmental microbiology; laboratory emphasis on basic techniques. Prerequisites: 002:010 and 002:011. Corequisites: 004:121.

**061:159 Pathogenic Bacteriology** 5 s.h.
Pathogenic bacteria, with emphasis on mechanisms of pathogenesis; laboratory emphasis on isolation, identification; laboratory emphasis on advanced methods for study of pathogenic bacteria. Prerequisites: grade of C or higher in 061:157 and consent of instructor.

**061:160 Microbial Physiology** 3 s.h.
Bacterial genomes, cell structure, growth, energy metabolism, biosynthesis, mechanisms of signal transduction and regulation; laboratory supplement in 061:180. Prerequisite: grade of C or higher in 061:157.

**061:161 Undergraduate Research in Microbiology arr.**
Experimental research under faculty supervision. Prerequisites: junior or senior standing and g.p.a. of at least 3.20.

**061:165 Microbial Genetics** 3 s.h.
Bacterial genetics, bacteriophages, laboratory supplement in 061:175. Prerequisite: grade of C or higher in 061:157 or consent of instructor.

**061:170 Honors Undergraduate Research in Microbiology arr.**
Experimental research under faculty supervision. Prerequisites: junior or senior standing and g.p.a. of at least 3.20.

**061:175 Microbial Physiology Laboratory** 2 s.h.

**061:180 Microbial Physiology** 2 s.h.

**061:188 Microbial Biotechnology** 3 s.h.
Industrially relevant microbiology; molecular biology, fermentation, cell culture, downstream processing; overview of industrial organisms; processes to make enzymes, bulk chemicals, antibiotics; safety, economic, regulatory aspects. Prerequisite: grade of C or higher in 061:157.

**061:190 Web-Based Nursing Microbiology** 4 s.h.
Nursing microbiology, principles of immunology, web-based instruction. Prerequisite: pre-nursing student standing or consent of instructor. Pre- or corequisite: 002:002 or 002:010 or 002:021.

**061:201 Graduate Immunology I** 3 s.h.
Prerequisites: courses in college biology, genetics, general chemistry, and introductory microbiology. Recommended course in biochemistry. Same as 148:201.

**061:202 Graduate Immunology II** 3 s.h.
Intercellular adhesion in the immune system, regulation of inflammation and lymphocyte traffic, immunological tolerance, autoimmune diseases, regulatory T cells, innate immunity, apoptosis, immunologic memory, microbial Emergencies. Prerequisites: grade of C or higher in 061:157.

**061:207 Advanced Topics in Immunology** 3 s.h.
Literature, skill in scientific presentation, current immunology concepts. Prerequisites: 002:201, and 002:201, or 148:201 and 148:202, or equivalents; and consent of instructor. Same as 148:221.

**061:210 Advance Prokaryotic Molecular Biology** 3 s.h.

**061:217 Integrated Topics in Infectious Diseases** 1 s.h.
Clinical cases used to raise questions in host-parasite interactions; case/scientific expose’s followed by related journal club discussions at next class session. Prerequisite: consent of instructor.

**061:218 Microscopy for Biomedical Research** 3 s.h.
Methods of tissue preparation for examination, scanning electron microscopy, fixation, embedding, ultra-thin sectioning and staining, theory, use, maintenance of electron microscopes; associated photographic techniques; advanced techniques such as immunofluorescence, freeze-fracture. Prerequisites: a biological science course and consent of instructor. Same as 002:218, 060:218.

**061:220 Advanced Light and Electron Microscopy arr.**
Individually designed projects, library searches, seminar and workshop participation. Prerequisite: introductory EM course and consent of instructor. Same as 002:220, 060:220.

**061:226 Advanced Topics in Microbial Development** 2 s.h.
Lectures and journal club discussions on molecular and cellular mechanisms of bacterial and viral adaptation and survival in animate and inanimate environments. Prerequisite: consent of instructor. Pre- or corequisites: 142:220, 061:160 or 061:260, and 061:170 or 061:270.

**061:259 Graduate Pathogenic Bacteriology** 5 s.h.
Pathogenic bacteria, with emphasis on mechanisms of pathogenesis; laboratory methods for isolation, identification; laboratory emphasis on advanced methods for study of pathogenic bacteria; research literature. Prerequisite: consent of instructor.

**061:260 Graduate Microbial Physiology** 3 s.h.
Bacterial genomes, cell structure, growth, energy metabolism, biosynthesis, mechanisms of signal transduction and regulation; laboratory supplement in 061:280.

**061:261 Graduate Research in Microbiology arr.**
Prerequisites: advanced degree candidate in microbiology and consent of instructor.

**061:262 Microbiology Seminar Journal Club** 1 s.h.
Student-led discussions of recent articles’/of departmental seminar speaker; opportunities for student-speaker interaction. Prerequisite: consent of instructor.

**061:263 Graduate Student Research Seminar** 1 s.h.
Presentation of thesis work in progress. Prerequisite: graduate standing in microbiology.

**061:265 Topics in Virology Literature** 1 s.h.
Papers of current interest in primary virology literature. Prerequisite: consent of instructor.

**061:267 Graduate Introduction to Animal Viruses** 3, 5 s.h.
Basic physical, chemical, biological properties of animal viruses, their association with human diseases; optional laboratory with emphasis on methods in basic, clinical, and molecular virology; discussion topics in the primary literature. Prerequisite: consent of instructor.

**061:268 Biology and Pathogenesis of Viruses** 2 s.h.
Molecular biology of animal DNA and RNA viruses, interaction of these viruses with eucaryotic cells; mechanisms of viral latency, persistence, cellular transformation, oncogenesis; virology literature. Prerequisites: 061:168 or 061:267 or equivalent, and biological sciences major.

**061:270 Graduate Microbial Genetics** 3 s.h.
Genetics of bacteria, bacteriophages; supplementary laboratory work in 061:271.

**061:271 Graduate Microbial Genetics Laboratory** 3 s.h.
Basic principles of genetic analysis in bacteria. Prerequisite: consent of instructor. Pre- or corequisite: 061:270.

**061:275 Perspectives in Biocatalysis** 1 s.h.
Applied enzymology, protein design, structure-activity relationships, biosensor technology, microbial transformations, biodegradation of environmental pollutants. Same as 004:275, 046:275, 052:275, 053:275, 059:275.

**061:279 Bacterial Diversity** 4 s.h.
Isolation, cultivation of bacteria from various habitats; physiological genetic characteristics of bacterial groups. Prerequisites: grade of C or higher in 061:157, 061:160 or 061:170 or equivalent; and consent of instructor.

**061:280 Graduate Microbial Laboratory** 2 s.h.
Isolation and growth of bacteria, bacterial function products, nutrient transport, metabolic pathways, enzymes. Prerequisite: consent of instructor.

**061:288 Graduate Microbial Biotechnology** 3 s.h.
Industrially relevant microbiology, molecular biology, fermentation, cell culture, downstream processing; overview of industrial organisms; processes to make enzymes, bulk chemicals, antibiotics; safety, economic, regulatory aspects. Prerequisite: microbiology major or consent of instructor.

**061:299 Mechanisms of Parasitism Journal Club** 1 s.h.
Same as 142:299.
Undergraduate degree: B.S. in Science Education
Graduate degrees: M.A.T.; M.S.; Ph.D. in Science Education
Web site: http://www.uiowa.edu/~scied/

The academic programs in science education include preparation in more than one discipline of science; a consideration of science from a philosophical, historical, and sociological perspective; an introduction to applied science (technology); and an education sequence. Because science education is transdisciplinary, program planning requires the cooperation and involvement of a variety of University departments and colleges. Most of the formal requirements are drawn from courses offered in these varied departments.

Undergraduate Program

The undergraduate program in science education represents a transdisciplinary major in science for students interested in education. The science education major is not intended to prepare students for advanced study in one area of science. When graduates of the Science Education Program elect to pursue graduate studies in a single area of science, they often must complete additional courses in that discipline after they are admitted to the Graduate College.

All of the emphasis areas in science education have the following characteristics in common:

• Depth in a general area of science equivalent to three years or six semesters of sequential study
• Preparation in a second area of science equivalent to two years or four semesters of sequential study
• Introduction to two other fields of science
• A specified proficiency in mathematics as a tool of science (with more mathematics study required for the physical science emphases than for the biological ones)
• A view of science from a historical/philosophical/cultural perspective
• Experience with the application of scientific knowledge

Bachelor of Science

The B.S. in science education requires 58-67 s.h. earned in selected courses in College of Liberal Arts and Sciences science departments, science applications courses, and courses in the history, philosophy, and sociology of science. Students may choose from four emphasis areas within the science education major: biological sciences, earth science, chemistry, and physics. Students who wish to be certified to teach science must complete the professional education requirements, a 40 s.h. sequence.

Students who wish to earn a B.S. degree in science education choose one of the following three options.

Option I (59-64 s.h.): Complete two emphasis areas and the broad science field block

Option II (minimum of 58 s.h.): Complete one emphasis area, 15 s.h. in a second emphasis area, the broad science field block, and at least 6 s.h. of additional course work in other emphasis area(s)

Option III (64-67 s.h.): Complete one emphasis area, 12 s.h. in each of the other emphasis areas, and complete 097:128 and 097:130

BIOLOGY EMPHASIS AREA

Total of 28 s.h.

All of these:
002:010-002:011 Principles of Biology I-II 8 s.h.
002:081 Human Genetics in the Twenty-First Century 3 s.h.
002:100 Plant Diversity and Evolution 4 s.h.
002:123 Plant Biochemistry 3 s.h.
097:103 Societal and Educational Applications of Biological Sciences 3 s.h.

One of these:
002:110 Plant Physiology 3 s.h.
002:124 Animal Physiology 3 s.h.

One of these:
002:116 Field Ecology 4 s.h.
002:134 Ecology 4 s.h.

CHEMISTRY EMPHASIS AREA

Total of 25 s.h.

All of these:
004:011-004:012 Principles of Chemistry I-II 8 s.h.
004:111 Analytical Chemistry I (fall) 3 s.h.
004:121 Organic Chemistry I 3 s.h.
004:125 Inorganic Chemistry (spring) 2 s.h.
004:141 Organic Chemistry Lab 3 s.h.
097:106 Societal and Educational Applications of Chemical Concepts 3 s.h.

One of these:
004:122 Organic Chemistry II 3 s.h.
004:131 Physical Chemistry 3 s.h.
099:110 Biochemistry (spring) 3 s.h.

EARTH SCIENCE EMPHASIS AREA

Total of 27 s.h.

All of these:
012:004 Evolution and History of Life 4 s.h.
012:005 Introduction to Geology 4 s.h.
012:006 Introduction to Environmental Science 4 s.h.
012:041 Mineralogy 4 s.h.
012:108 Introduction to Oceanography 2 s.h.
012:114 Energy and the Environment 3 s.h.
097:102 Societal and Educational Applications of Earth Science and Environmental Science 3 s.h.

One of these:
012:102 Earth Surface Processes 3 s.h.
012:104 Climatology 3 s.h.
012:121 Principles of Paleontology 3 s.h.
012:136 Soil Genesis and Geomorphology 3 s.h.

Physics Emphasis Area

Total of 24-26 s.h.

One of these sequences:
029:011-029:012 College Physics 8 s.h.
029:081-029:082 Introductory Physics I-II 8 s.h.

One of these:
029:029 Physics III 4 s.h.
029:083 Modern Physics 3 s.h.

One of these:
029:050 Stars, Galaxies, and the Universe 4 s.h.
029:061 General Astronomy 4 s.h.

One of these:
029:128 Electronics 4 s.h.
029:131 General Laboratory (Saturday & Evening Classes) 3 s.h.

All of these:
029:115 Intermediate Mechanics 3 s.h.
097:105 Societal and Educational Applications of Physical Sciences 3 s.h.

Broad Field Science Block

097:102 Societal and Educational Applications of Earth Science and Environmental Science 3 s.h.
097:103 Societal and Educational Applications of Biological Sciences 3 s.h.
097:105 Societal and Educational Applications of Physical Sciences 3 s.h.
097:106 Societal and Educational Applications of Chemical Concepts 3 s.h.
097:128 Meaning of Science 2 s.h.
097:130 Science in Historical Perspective 2 s.h.

Four-Year Graduation Plan

The four-year graduation plan is not available to students majoring in science education.

Teacher Licensure

Candidates for a bachelor's degree in science education may, but are not required to, be admitted to the Teacher Education Program (TEP) in the College of Education. In order to be considered for admission to the TEP, students must have completed a minimum of 30 s.h. of science course work with a cumulative p.g.a. of at least 2.70. A limited number of applicants are accepted into the TEP, so having the required grade-point average does not ensure admission. Admission decisions are based on grade-point averages in science courses and other criteria relevant to teaching.

Procedures and deadlines for TEP applications are described under “Curriculum and Instruction” in the College of Education section of the Catalog. Interested students must apply to the College of Education for admission to the Teacher Education Program.

TEP students must complete the College of Liberal Arts and Sciences General Education Program, the requirements for a science education major, and the following professional education courses, which total 41-42 s.h.

07B:180 Human Relations for the Classroom Teacher 3 s.h.
Minors in Science Teaching

Four science teaching minors are available for persons with teaching majors in other academic areas: biology, chemistry, earth science, and physics. Students must complete a major emphasis area and a science methods course, approved by the science education department.

Special Rules

Since the Science Education Program may involve many faculty advisers and several colleges and departments, some special rules and regulations apply to science education students. They include the following.

- At least 10 s.h. of graded credit in science must be earned at The University of Iowa.
- No credit from the CLEP Natural Science General Examination may be used toward the major in science education.
- Courses used for the major may not be taken pass/nonpass; grades from all courses used for the science education major are used in computing a student’s grade-point average in the major, both at The University of Iowa and overall.
- Since mathematics forms an integral part of so many aspects of modern science, all science education students are urged to complete appropriate advanced courses in both pure and applied mathematics (including statistics and computer science) so that they may be qualified to do graduate work and quantitative research later.

Honors

To graduate with honors, students must maintain a University of Iowa g.p.a. of at least 3.33 and in addition to other science education requirements.

Contact the University Honors Program for more information on honors study at Iowa.

Graduate Programs

The Science Education Program offers graduate studies leading to the Master of Arts in Teaching, Master of Science, and Doctor of Philosophy. These programs are described under “Secondary Education” in the College of Education section of the Catalog. The Master of Science with specialization in elementary school science education is described under “Early Childhood and Elementary Education.”

Research

Each faculty member in science education is responsible for one or more areas of research. Major interests include studies of effective teaching and learning, philosophy and sociology of science, individualized learning, social issues in science and technology, curriculum planning and development, professional development, intellectual development related to teaching and learning science, studies of effective use of hands-on activities, and evaluation and assessment of science instruction and programs.

Special Programs

A wide range of funded programs provide ample opportunity for students to be involved in innovative development and research in science education. Of special importance is the Science Education Center's commitment to improvement of science programs, toward which it works with teachers from Iowa and throughout the country. Special inservice programs guide teachers in adapting innovative instructional methods, including problem solving methods, STS, and laboratory centered instruction. Other programs of the center promote development and revision of science curricula K-12, science literacy, and programs for gifted and talented students. Many Science Education Center activities are funded by NSE, Title II, Eisenhower, the Iowa Lottery program, and Iowa industries. Teachers involved in in-service programs often are attracted to graduate degree programs.

International Programs

Science education faculty members have collaborated on a number of international research and development projects in countries including Brazil, China, Italy, Spain, Portugal, Israel, Nigeria, Malaysia, Indonesia, Korea, Australia, Taiwan, South Africa, Mexico, Venezuela, and India. Several faculty exchanges have occurred, and numerous cross-national studies have been undertaken.

International students enrich the opportunities for graduate studies at the Science Education Center. Many have enrolled from Indonesia, Korea, Malaysia, Nigeria, Taiwan, and other nations around the world. Relations are maintained and new collaborative efforts are under way each year.

Facilities

The facilities for science education programs include a main office; faculty, secretarial, and graduate student office space; an ICN instructional laboratory; instructional classrooms, including space for elementary and secondary school science methods courses and applications-oriented courses; a departmental conference room used for seminars, conferences, meetings, workshops, and in-service work with teachers, supervisors, and administrators; a commons area for small-group discussions and individual work; and a lounge. The Science Education Center is located in Van Allen Hall near the center of the University campus.

Courses

The following are special courses offered by the Science Education Program to supplement the undergraduate emphasis areas in science education and to provide science options for elementary education majors.

097:102 Societal and Educational Applications of Earth Science and Environmental Science

097:103 Societal and Educational Applications of Biological Sciences

097:105 Societal and Educational Applications of Physical Sciences

097:106 Societal and Educational Applications of Chemical Concepts

097:107 Textile Science

097:112 Race to Save the Planet

097:113 Introduction to Museology

097:115 Directed Study

097:117 Meaning of Science

097:128 History in the Classroom

097:130 Science in Historical Perspective

097:140 Problems in Integrating the Teaching of Science and its related contemporary social issues from historical development perspective.

097:144 Problems in the Teaching of Science and its related contemporary social issues from historical development perspective.

CERTIFICATES AND OTHER PROGRAMS

Students in the College of Liberal Arts and Sciences have many opportunities for interdisciplinary study. In addition to majors offered by the college's departments and
interdisciplinary programs, students may earn certificates and sometimes minors from programs in the college’s Division of Interdisciplinary Programs. The Aging Studies Program and the American Indian and Native Studies Program offer certificates and minors to undergraduates. The Medieval Studies, Museum Studies, and Sexuality Studies Programs offer certificates.

The college and the University’s International Programs office cosponsor certificates and minors in the Global Health Studies and Latin American Studies Programs. The College of Public Health offers the Certificate in Public Health, which students in the College of Liberal Arts and Sciences can earn.

Students can earn the Certificate in International Business, cosponsored by the College of Liberal Arts and Sciences and the Tippie College of Business; the Certificate in American Sign Language and Deaf Studies from the American Sign Language Program; and the Certificate in Philosophy and Ethics of Politics, Law, and Economics, sponsored by the PEOPLE program. Undergraduates also can take courses in book arts from the Center for the Book, which offers a graduate certificate.

### American Sign Language

**Chair:** Richard Hurtig  
**Associate professor:** Douglas Baynton  
**Adjunct instructor:** Tim Sheets  
**Lecturers:** Brenda J. Falgier, Freeman Harper, Kimela Nelson, Joy Spurll  
**Language coordinator:** Kimela Nelson  
**Undergraduate nondegree program:** Certificate in American Sign Language and Deaf Studies  
**Web site:** [http://www.uiowa.edu/~aslowa](http://www.uiowa.edu/~aslowa)

The American Sign Language Program offers a four-semester course sequence in American Sign Language (ASL), an undergraduate Certificate in American Sign Language and Deaf Studies, courses for teacher licensure, and elective courses in ASL and spoken English. Classroom instruction is supplemented by video materials and interactive software in the Language Media Center. Students may use the American Sign Language sequence 158:011, 158:012, 158:013, and 158:014 to complete the foreign language component of the College of Liberal Arts and Sciences General Education Program.

#### Certificate

The American Sign Language and deaf studies certificate is an interdisciplinary program in which students learn about the history, culture, and language of the American deaf community. Through the study of American Sign Language, students come into contact with a language that is semantically and grammatically very different from their own and that operates in a different sensory channel as well. Students who undertake the program encounter a rich and complex culture, including a rapidly growing literature recorded on film and videotape since the early 20th century.

The American Sign Language and deaf studies certificate program permits students to link study in three or more disciplines into an organized investigation of a language and culture. A certificate in American Sign Language and Deaf Studies serves as a valuable confirmation for employers and graduate schools of a student’s specialized knowledge in the field.

Any undergraduate student pursuing a degree from The University of Iowa may earn the Certificate in American Sign Language and Deaf Studies. Holders of University of Iowa baccalaureate degrees who are not enrolled in graduate or professional programs may return to complete the requirements for a certificate.

Certificate courses may also be used to satisfy major or minor requirements, but they may not be used to satisfy more than one certificate requirement. Courses used to satisfy certificate requirements may not be taken pass/nonpass.

Up to 6 s.h. of transfer work may be accepted towards certificate requirements, with the approval of the American Sign Language and deaf studies adviser.

#### REQUIRED COURSES

The Certificate in American Sign Language and Deaf Studies requires completion of the sequence 158:011, 158:012, 158:013, and 158:014, or demonstration of equivalent proficiency, and a minimum of 18 s.h. of approved courses from at least three different departments. At least 6 s.h. must be chosen from the following core courses.

- **158:100/16A:104 History of the American Deaf Community** 3-4 s.h.
- **158:101 Topics in Deaf Studies** 3 s.h.
- **158:103 American Sign Language Literature** 3 s.h.
- **158:111 American Sign Language Conversation** 3 s.h.

Certificate students also complete at least four courses (12 s.h.) from two or more of the following departments. They may petition to have courses that are not listed below approved for certificate requirements.

#### Anthropology

- **113:014 Language, Culture, and Communication** 3 s.h.
- **113:172 Language and Culture** 3 s.h.
- **113:173/103:150 Language and Gender** 3 s.h.
- **113:179 Language and Identity** 3 s.h.

#### Education

- **07U:100 Foundations of Special Education (open only to students who have been admitted to the Teacher Education program)** 3 s.h.
- **07U:110/158:110 Teaching Deaf and Hard of Hearing Students** 3 s.h.
- **07U:133 The Culturally Different in Diverse Settings** 3 s.h.

#### History

- **16A:104/158:100 History of the American Deaf Community** 3-4 s.h.
- **16A:106 Disability in American History** 3 s.h.

#### Linguistics

- **103:011 Language and Society** 3 s.h.

- **103:045 Language Rights** 3 s.h.
- **103:100 Introduction to Linguistics** 3 s.h.
- **103:150/113:173 Language and Gender** 3 s.h.

#### Speech Pathology and Audiology

- **003:117 Psychology of Language** 3 s.h.
- **003:185 Hearing Loss and Audiology** 3 s.h.
- **003:244 Rehabilitative Audiology** 3 s.h.

#### Teacher Licensure for Hearing Impaired Endorsement

The American Sign Language Program offers courses that fulfill requirements for the Hearing Impaired Endorsement offered by the College of Education. The University of Iowa currently is the only institution in Iowa that offers this endorsement program. Holders of this endorsement are authorized to serve deaf and hard-of-hearing students from birth to age 21. Applicants to the program must hold or be in the process of completing requirements for an elementary or secondary teaching license.

#### Courses

- **158:011 American Sign Language I** 4 s.h.  
  Conventional skills, basic grammar of ASL; introduction to the ASL cultural community through readings, videos. Taught in ASL. First in a four-semester sequence. GE: foreign language. Same as 158:121.

- **158:012 American Sign Language II** 4 s.h.  
  Continuation of 158:011; emphasis on ASL grammar and syntax; focus on culture through readings, videos. Taught in ASL. Prerequisite: 158:011 or consent of instructor. GE: foreign language. Same as 158:122.

- **158:013 American Sign Language III** 4 s.h.  
  Continuation of 158:012; emphasis on ASL grammar and syntax; focus on culture through readings, videos. Taught in ASL. Prerequisite: 158:012 or consent of instructor. GE: foreign language. Same as 158:123.

- **158:014 American Sign Language IV** 4 s.h.  
  Continuation of 158:013. Taught in ASL. Prerequisite: 158:013 or consent of instructor. GE: foreign language. Same as 158:124.

- **158:100 History of the American Deaf Community** 3-4 s.h.  
  Creation of a distinct language and culture of deaf people in America during the 19th and 20th centuries. Same as 16A:104.

- **158:101 Topics in Deaf Studies** 3 s.h.  
  Current topics in deaf studies; skill development in communicative fluency in ASL. Taught in American Sign Language. Pre- or corequisite: 158:014 or consent of instructor.

- **158:103 American Sign Language Literature** 3 s.h.  
  Introduction to the world of American Sign Language literature, as recorded on videotape or film and in live performance, traditional folklore, story telling, poetry, drama, oratory, jokes, and nonfiction narrative; analysis of genres in their social and cultural contexts as expressions of deaf experience, how historical and current issues in deaf culture are represented in literary form. Taught in American Sign Language. Pre- or corequisite: 158:014 or consent of instructor.

- **158:110 Teaching Deaf and Hard of Hearing Students** 3 s.h.  
  Recognition and response to variability in the deaf population—how the deaf best learn and are best taught; how to teach varied subject matter addressing the diversity in large and small groups of deaf students; issues in testing, use of technology, ethnic and cultural diversity, classroom management, educational program options. Prerequisite: consent of instructor. Same as 07U:110.

- **158:111 American Sign Language Conversation** 3 s.h.  
  Improvement of receptive and expressive conversational ASL skills through small group discussion, class presentations. Taught in American Sign Language. Pre- or corequisite: 158:013 or consent of instructor.

- **158:121 American Sign Language I** 4 s.h.  
  Prerequisite: graduate standing. Same as 158:011.
To enter the program, students must already be enrolled at The University of Iowa. They must maintain a g.p.a. of 3.00 in the 25 s.h. of work for the certificate.

Certificate requirements are as follows.

**CORE COURSES**

Students complete the following.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>152:111/173:111/175:111 International Health</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>152:150 Global Health Seminar (may be repeated for elective credit)</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>152:151 Proseminar in Global Health</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>152:152 Global Health Conference (may be repeated for elective credit)</td>
<td>1 s.h.</td>
</tr>
</tbody>
</table>

**ELECTIVES**

Students complete 17-18 s.h. from the list of approved electives and may apply up to 6 s.h. earned for study abroad to the 17-18 s.h. requirement. Students may petition to take courses not on the approved list, providing that these courses can be shown to substantially include global health-related material. For more information, consult the program office.

**FOREIGN STUDY OR RESEARCH**

Students must complete a study or research project of four to eight weeks duration, typically in a foreign setting but under some circumstances in the United States. They may develop and conduct a research project, participate in a health-related study abroad program, assist a faculty member with research, or complete an internship on a global/environmental health issue. Projects require approval by the Global Health Studies Program steering committee and must be supervised by a faculty member. Academic credit for research or internship experiences may be applied toward the elective requirement.

Financial support may be available for some projects. Consult the program office.

**Foreign Language Study**

Students should complete four semesters of modern language study or course work that fulfills or is equivalent to the College of Liberal Arts and Sciences General Education Program foreign language component. This certificate requirement can be waived for students whose first language is not English.

The Global Health Studies Program steering committee may require students to take additional language study in preparation for a research or internship program. Graduate students interested in learning an infrequently taught language to facilitate their participation in a foreign experience should investigate the Foreign Language and Area Studies Graduate Fellowships. Language study undertaken abroad during an internship or study abroad program may be considered for elective credit toward the 25 s.h. required for the certificate.

**Public Presentation**

During the semester following the foreign experience, students present their foreign research project results to a special session of 152:150 Global Health Seminar or to an equivalent public forum, such as a departmental seminar. Students also must submit a two- to three-page project report summarizing their research, study abroad, or internship experiences.

**Minor**

The interdisciplinary minor in global health studies is designed for undergraduate students who wish to study health issues in a global context. It draws on a set of courses offered by the Global Health Studies Program and the Departments of Anthropology, Economics, Geography, History, Sociology, Psychology, and Literature, Science, and the Arts; the Colleges of Engineering, Law, Nursing, and Public Health, and the Carver College of Medicine.

The minor in global health studies requires the completion of at least 15 s.h. of core and/or elective courses. Course work may be chosen from courses offered by the Global Health Studies program (see “Courses”) or by other departments and programs (see “Affiliated Courses”). Because the program is interdisciplinary, students should choose course work from at least two different disciplines, and they are strongly encouraged to include a core course from those listed under requirements for the certificate. A period of study abroad focused on global health issues is highly recommended.

Each student's plan of study for the minor will be developed according to the student's interests and in consultation with a program adviser and the Office for Study Abroad.

Students must earn a g.p.a. of 2.00 or higher for all work for the minor and must complete at least 12 s.h. of credit for the minor at The University of Iowa.

**Special Opportunities**

The Global Health Studies Program organizes both on-campus and international activities and research opportunities for students and faculty members, enabling them to become acquainted with major global health issues. Several scholarships, academic fellowships, international fellowships, and research and study abroad programs supplement the global health studies certificate program. These are sponsored by the University and/or a variety of agencies. Consult the program office for more information.

**Study Abroad Programs**

The Global Health Studies Program participates in the following study-abroad programs.

- Latin American Health, Nutrition, and Environmental Issues: study abroad in the Dominican Republic (summer and fall semesters)
- Environmental studies in Slovenia: three-week intensive courses taught in summer and focusing on global environmental health policy development, atmospheric pollution sources and control, and environmental epidemiology
- Health and environment studies in The Gambia
- Reproductive health and sexuality: De La Salle University, Manila, the Philippines
International Fellowships, Internship

Stanley Fellowships for Graduate and Undergraduate Student Research Abroad:
Graduate fellowships are primarily for M.A. and M.S. students proposing to conduct thesis research, but proposals also are welcome from Ph.D. or professional students who would benefit from a period of preliminary research abroad.

CIREH International Health Research Fellowships: The Center for International Rural and Environmental Health provides support to graduate students conducting research projects in health and environmental health that require international travel to developing countries and newly democratized countries in central and eastern Europe.

CIREH International Internship Program: The Center for International Rural and Environmental Health supports participation in a summer internship program designed to enable students who are midway through a graduate degree program to participate in a summer internship that provides them with international experiences related to public, environmental, and occupational health issues in central and eastern Europe.

Affiliated Courses

In addition to courses offered by the Global Health Studies Program (see "Courses"), students may use the following courses to complete requirements for the certificate or minor.

AGING STUDIES
153:108 Basic Aspects of Aging 3 s.h.

ANTHROPOLOGY
113:136 Applied Anthropology (when topic is environmental and community health) 3 s.h.
113:157 Alcohol and Culture 3 s.h.

COMMUNITY AND BEHAVIORAL HEALTH
172:130 Social Sciences and Health 3 s.h.
172:150 Health Behavior and Health Education 3 s.h.

ECONOMICS
06E:113 Health Economics 3 s.h.

EDUCATION
07B:195 Research in Cross-Cultural Settings 3 s.h.

LITERATURE, SCIENCE, AND THE ARTS
033:153 Hard Cases: Science Policy and Values (when topic is health related) 3 s.h.

NURSING
096:175 Issues in International Nursing and Health Care 3 s.h.

PUBLIC HEALTH
170:101 Introduction to Public Health 3 s.h.
170:171 Problems in Public Health (when topic is tobacco control and prevention) arr.

SOCIOLOGY
034:134 Aging in Comparative Perspective 3 s.h.

Courses

152:107 Transcultural Mental Health 3 s.h.
   Same as 096:174.
152:108 Health and Cultural Diversity 3 s.h.
   Same as 096:172, 113:108.
152:111 International Health 3 s.h.
   Same as 173:111, 175:111.
152:112 Global Environmental Health Policy 3 s.h.
152:120 Global Health and Human Rights 3 s.h.
   Prerequisite: junior or senior standing or consent of instructor.
152:125 Topics in Global Health 3 s.h.
152:131 Geography of Health 1-3 s.h.
   Same as 044:131.
152:136 History of Medicine in Western Society 3 s.h.
   Same as 016:136.
152:137 History of Public Health 3 s.h.
   Same as 16W:137.
152:138 History of International Health 3 s.h.
   Same as 16W:138.
152:148 Population, Environment, and Development 3 s.h.
152:150 Global Health Seminar 2-3 s.h.
   Local and global dimensions of health and disease. Offered fall and spring semesters.
152:151 Promenar in Global Health 1 s.h.
   Important health problems and issues of a global and international nature that affect the developed and developing world.
152:152 Global Health Conference 1 s.h.
   Spring research conference on major global health issues. Prerequisite: conference registration.
152:155 U.S. Health Care System Global Perspective 3 s.h.
   Exceptionalism of the American health care system from historical, institutional, economic, clinical, and ethical perspectives. Same as 16W:139.
152:158 Promoting Health Globally 2 s.h.
   Major global health threats (e.g., infectious disease, violence, tobacco, and nutrition): the impact of culture, history, and economics on health disparities and remedies. Prerequisite: junior or senior standing, or certificate student standing. Same as 028:147.
152:162 Principles of Environmental Engineering 3 s.h.
   Same as 053:055.
152:165 Water and Global Health 2-3 s.h.
   Relationship between water quality and human health and welfare worldwide.
152:170 Health Care and Health Reforms in Russia 3 s.h.
   Same as 041:104, 174:170.
152:171 Global Health Informatics Workshop 2-3 s.h.
   Assessment of digital communication resources in studying and responding to significant global health problems in Third World nations. Prerequisite: junior or senior standing, or certificate student standing.
152:175 Issues in International Nursing and Health Care 3 s.h.
   Same as 096:175.
152:182 U.S. Health Experiences of Immigrants, Migrants, and Refugees 3 s.h.
   Unique health challenges and health care experiences of recent immigrants, refugees, migrants.
152:184 Anthropology and International Health 3 s.h.
   Same as 113:184, 172:131.
152:185 Medical Anthropology 3 s.h.
   Same as 113:185.
152:199 Special Projects in Global Health arr.
   Prerequisite: consent of instructor.
152:200 Field Methods for International Research 3 s.h.
   Field research in area studies or social science outside North America: research design, IIB review and field ethics, recording and preserving data, conduct of interviews, pro's and cons of using research assistants, using archives, personal security, general principles, theoretical positions, case studies. Prerequisite: graduate standing or consent of instructor.
152:217 Health Insurance and Managed Care 3 s.h.
   Same as 174:217.
152:250 Critical Development Seminar, Graduate Local and visiting speakers. Repeatable.
   1 s.h.
152:252 Theories of Environmental Policy and Assessment 3 s.h.
   Same as 053:204, 175:252.
152:257 Epidemiology of Infectious Diseases 3 s.h.
   Same as 173:255.
152:281 Medical Geography 3 s.h.
   Same as 044:281.

DIVISION OF INTERDISCIPLINARY PROGRAMS

Director: Helena Detmer (Classics)

The College of Liberal Arts and Sciences has long recognized that research and learning cannot always be contained within one discipline and that interactions between experts in different disciplines benefit researchers and students alike. One locus of interdisciplinary activity in the college is the Division of Interdisciplinary Programs. The division provides a structure that facilitates teaching, research, and service that cut across established boundaries.

The division provides an administrative umbrella for several of the college's programs. The Program in Literature, Science, and the Arts, the Interdepartmental Studies Program, and the Leisure Studies Program offer undergraduate majors. The Aging Studies, American Indian and Native Studies, Medieval Studies, Museum Studies, and Sexuality Studies Programs offer certificates and, in some cases, minors. The Center for the Book offers a graduate certificate and courses that undergraduates may choose as electives.

Located in the Jefferson Building, the Division of Interdisciplinary Programs provides a home for its constituent programs and centralizes administrative activities. The division home facilitates access to academic advising for students and administrative support for faculty members.
**AGING STUDIES**

**Director of Interdisciplinary Programs:**
Helena Dettmer

**Aging studies coordinator:** Richard MacNeil

**Undergraduate nondegree programs:** certificate, minor in Aging Studies

**Graduate nondegree program:** certificate in Aging Studies

**Web site:** http://www.uiowa.edu/~agingstp

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

### Certificate

The certificate in aging studies requires 21 s.h. of approved aging-related courses numbered 100 and above. Aging-related course work is defined as University of Iowa courses that focus principally on older persons, the aging process, or interventional methods or techniques whose target is the older adult or aging. The certificate is available to undergraduate and graduate students. A g.p.a. of at least 2.00 is required in all course work applied toward the certificate.

The certificate in aging studies requires completion of a core curriculum of six courses and an additional 2-5 s.h. of elective course work from the list of approved aging-related courses.

With the approval of their major department, students may apply course work to their major or professional program of study. They must take 6 s.h. outside the major department. A minimum of 15 s.h. of course work in aging studies must be completed at The University of Iowa.

Transfer credit is determined individually. Students who wish to apply credit earned at other institutions to the aging studies certificate should consult the aging studies coordinator.

Students may take core courses before, or concurrently with, other courses in the program. The research project or the practicum course should not be taken until the core courses are completed.

The program is open to all interested graduate students, undergraduate students, and nondegree students whose career interests and needs are served by completing the program. The certificate is awarded after completion of all program requirements, upon receipt of a baccalaureate degree, or to students who have already received an undergraduate degree.

Students in good standing may establish study plans with the Aging Studies program advisor, who works with them and their major advisers to shape a study plan complementary to their academic program and career interests.

Students should contact the Aging Studies Program to develop an appropriate study plan. The Aging Studies Program schedules required courses; recommends the sequence in which course work should be taken, and keeps a record of each student’s approved program and progress.

When a student completes an undergraduate degree and fulfills the requirements for the aging studies certificate, the program notifies the registrar, who records completion of the program on the student’s transcript. Holders of Iowa baccalaureate degrees may return to complete the requirements for the certificate.

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

Students are encouraged to register their intent to pursue the aging studies certificate with the Division of Interdisciplinary Programs. In order to receive the certificate, students must contact the division office when they submit their Application for Degree, before graduation.

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

The following course work is required.

#### CORE COURSES

All certificate students must complete the following six core courses.

- 153:134/034:134 Aging in Comparative Perspective 3 s.h.
- 153:150/031:150 Psychology of Aging 3 s.h.
- 153:160 Biology of Aging 3 s.h.
- 153:190/042:190 Field Work in Gerontology 3-6 s.h.
- 153:130 Aging Studies Colloquium—Undergraduate or Graduate Students 1 s.h.

#### ELECTIVES

Students must complete an additional 2-5 s.h. of elective course work from the following lists of approved aging-related courses. Practicum and/or research courses offered by other academic departments may be accepted for elective credit if the content or focus is aging-specific. Students who wish to apply course work from other departments should consult the Aging Studies Program coordinator.

**Psychological Aspects of Aging**

- 025:139 Music Therapy Techniques: Adult Clients 3 s.h.
- 113:147 Special Topics in Anthropology (cross-cultural perspectives on death, dying, and bereavement) 2-3 s.h.
- 153:030/096:030 Human Development and Behavior 3 s.h.
- 153:150/031:150 Psychology of Aging 3 s.h.

**Biological/Health Aspects of Aging**

- 003:530 Seminar: Communication Disorders and Aging 2 s.h.
- 028:136 Physical Activity Through the Life Span 3 s.h.
- 153:122 Geriatrics and Health Care for the Elderly 1-3 s.h.
- 153:133/028:133 Nutrition Through the Life Span 3 s.h.

#### Social and Cultural Aspects of Aging

- 032:268/050:167 Readings in Biomedical Ethics arr.
- 034:269 Seminar: Selected Topics in Family Sociology 3 s.h.
- 153:134/034:134 Aging in Comparative Perspective 3 s.h.
- 153:153/042:153 Survey of Gerontological Programs and Services 3 s.h.
- 153:163/032:163 Introduction to Biomedical Ethics 2-3 s.h.
- 153:168/169:168 Aging and Leisure 3 s.h.
- 153:185/042:185 Social Policy and the Elderly 3 s.h.
- 153:211/042:211 Individual and Family Development: Life Span 3 s.h.
- 153:219/042:219 Aging and the Family 2-3 s.h.
- 153:222/042:222 Social Policy Issues in Health Care 3 s.h.

**Minor**

Undergraduate students in the Colleges of Liberal Arts and Sciences, Education, Engineering, Nursing, or the Tippie College of Business may complete a minor in aging studies. To earn the minor, students are required to complete 15 s.h. of aging studies course work at The University of Iowa. The introductory core course 153:108 Basic Aspects of Aging, 153:150 Psychology of Aging, 153:160 Biology of Aging, and 153:134 Aging in Comparative Perspective are all required, as is an elective course in aging offered by the Aging Studies Program or by an associated department. The elective course must be approved by the Aging Studies Program. Courses used to complete a major, minor, or certificate in another area may not be used to complete a minor in aging studies. Students must have a g.p.a. of at least 2.00 in all work in aging studies.

**Interdepartmental Studies B.A. Option**

Students in the College of Liberal Arts and Sciences who would like to design an individualized program in aging studies leading to a Bachelor of Arts must apply and be accepted to the Interdepartmental Studies Program. Entry into the program requires approval of a plan of study that includes 36 s.h. of upper-level course work.
work. Students enrolled in this program also may meet the requirements for a certificate or minor in aging studies.

Courses

153:029 First-Year Seminar 1-2 s.h.
Small discussion class taught by a faculty member, topics chosen by instructor; may include outside activities (e.g., films, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

153:030 Human Development and Behavior 3 s.h.
Developmental stages of the human organism from conception through senescence; physiological, intellectual, emotional, social factors. Prerequisite: 031:001. Same as 096:030.

153:108 Basic Aspects of Aging 3 s.h.
Social, psychological, and biological aspects; demographics of aging, health, economic issues, primary relationships, social services. Same as 042:108, 096:108, 169:108.

153:110 Growing Old in a New Age 3 s.h.
Process of aging, including physiological, psychological, social aspects; myths of aging; impact of elderly on global demographics; ethical dilemmas of aging society.

153:112 Gerontology: Multidisciplinary Perspectives 3 s.h.
Major theoretical approaches and current research in biology, health, psychology, sociology, and social policy as applied to study of aging.

153:119 Writing for Interdisciplinary Audiences 3 s.h.

153:122 Geriatrics and Health Care for the Elderly 1-3 s.h.
Biological and health aspects of aging; major diseases and disorders that affect the elderly; assessment methodologies, health care policies, preventive and health promotion measures; research.

153:124 Independent Study in Gerontology arr.
Initial research project and/or research. Prerequisite: consent of instructor.

153:130 Aging Studies Colloquium—Undergraduate 1 s.h.
Research topics and procedures in gerontology and geriatrics; ongoing faculty research. Prerequisite: enrollment in Aging Studies Program.

153:133 Nutrition through the Life Span 3 s.h.
How body processes and nutritional needs change with age and physiological state; effects of food-drug-medication interactions, anorexia, bulimia, and adolescent pregnancy; emphasis on food and health habits that minimize nutrition-related problems. Prerequisite: 028:130. Same as 288:133.

153:134 Aging in Comparative Perspective 3 s.h.
Sociological foundations of world variation in aging; relationships between societies' political and economic institutions and their treatment of the aging process. Prerequisite: 034:001 or 034:020 or consent of instructor. Same as 034:134.

153:145 Introduction to Geriatric Dentistry 2 s.h.
Biological, psychological, social aspects of aging, normal aging, disease processes, pathological changes that affect treatment, patient management. Prerequisite: dental hygiene or dental student. Same as 112:145.

153:146 Health Promotion for Older Adults 3 s.h.
Problems, strategic efforts toward long-term goal of health promotion; disease prevention; slowing decline of chronic conditions to allow independent, rewarding lives. Same as 096:146, 169:146.

153:147 End of Life Care for Adults and Families 3 s.h.
End-of-life issues in care of adults, older adults, and their families. Same as 046:146, 096:147.

153:150 Psychology of Aging 3 s.h.
The later years of human life viewed from perspectives of developmental psychology, biology, sociology. Prerequisite: 031:001 or equivalent. Same as 031:050.

153:153 Survey of Gerontological Programs and Services 3 s.h.
Same as 042:153.

153:160 Biology of Aging 3 s.h.
Biogerontology; definition of aging and senescence, biological theories of aging, demographics, model systems foraging, premature aging syndromes, aging of organ systems in humans. Prerequisite: 153:108.

153:163 Introduction to Biomedical Ethics 2-3 s.h.
Ethical dimensions of modern life sciences; emphasis on problems of method. Same as 032:163.

153:165 Communication Disorders and Aging 2 s.h.
Introduction to speech, language, and hearing processes and disorders among older adults; survey of characteristics of communicative and communication breakdown, remediation, and strategies for improving communication with older adults with communication disorders; primarily for nonmajors and service providers other than speech-language pathologists and audiologists. Offered summer sessions of odd years. Same as 003:165.

153:166 Exercise Management: Chronic Disease Lab 1 s.h.
Development, implementation, instruction of exercise programs for special populations. Prerequisite: 028:138 or consent of instructor. Same as 028:166.

153:168 Aging and Leisure 3 s.h.
Status of the well elderly in relation to issues of retirement, use of free time, and factors supporting leisure activity; leisure services in long-term care. Same as 169:168.

153:185 Social Policy and the Elderly 3 s.h.
Public social policies, their effect on well-being of elderly, including women and minorities; U.S. and other nations' policies. Prerequisites: 046:014 and an introductory course on aging (042:108), or consent of instructor; and junior standing or higher. Same as 042:185.

153:186 Death and Dying: Issues Across the Life Span 3 s.h.
Introduction to death and dying, historical, cultural, societal, and personal perspectives. Prerequisite: admission to social work, aging studies, or consent of instructor. Same as 042:186.

153:190 Field Work in Gerontology arr.
Opportunities for students to gain knowledge and skills in gerontology in the area of aging studies, under the direction of a gerontology professional. Prerequisite: any introduction to aging studies, or consent of instructor.

153:193 Death, Dying, and Tradition 2-3 s.h.
Role of religion among persons suffering from life-changing and life-threatening illness. Same as 032:117.

153:195 Introduction to Nursing Homes 3 s.h.
Overview of nursing home roles in context of long-term care system, characteristics of nursing home residents. Same as 042:195.

153:211 Individual and Family Development: Life Span 3 s.h.
Infancy through senescence; families from their beginnings through their later years; theoretical, methodological issues. Prerequisite: graduate standing. Same as 042:211.

153:219 Aging and the Family 2-3 s.h.
Research related to aging and the family; intergenerational relations, marital status, diversity of older families, caregiving, elder abuse; policy issues. Same as 042:219.

153:222 Social Policy Issues in Health Care 3 s.h.
Policy model used to analyze major health policy issues in the United States, health care systems; socioeconomic-political contexts, tendencies, strategies, prospects for change, significance for social work profession. Prerequisite: 042:143 or consent of instructor. Same as 042:222.

153:230 Aging Studies Colloquium 1 s.h.
Research topics in gerontology. Geriatrics. Repeatable.

153:261 Epidemiology of Aging 1-2 s.h.
Epidemiological methods for assessing and interpreting the health status of older persons; applications for research studies and public health programs. Offered fall semesters. Prerequisite: 173:140. Same as 173:261.

153:410 Nursing Research in Sociocultural Phenomena and Interventions for the Elderly 3 s.h.
Sociocultural issues for aging clients, corresponding nursing interventions; theoretical orientations to dynamics of aging, transitions and role changes, social/environmental issues. Prerequisite: doctoral standing. Same as 096:430.

153:430 Nursing Research in Sociocultural Phenomena and Interventions for the Elderly 3 s.h.
Sociocultural issues for aging clients, corresponding nursing interventions; theoretical orientations to dynamics of aging, transitions and role changes, social/environmental issues. Prerequisite: doctoral standing. Same as 096:430.

AMEERICAN INDIAN AND NATIVE STUDIES

Director of Interdisciplinary Programs: Helena Dettme
Academic coordinator: Phillip Round
Assistant professors: Michalene Pesantubbee (Religious Studies/American Indian and Native Studies), Jacki T. Rand (History/American Indian and Native Studies)

Undergraduate Programs

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

Certificate

Students pursuing the undergraduate certificate in American Indian and Native studies must earn at least 20 s.h. in courses chosen from the list of approved AINSP courses, with a g.p.a. of at least 2.00. This course work must include the following:

149:049 Introduction to American Indian and Native Studies 3 s.h.
149:101 American Indian and Native Studies Seminar (taken two semesters) 2 s.h.
149:102 Introduction to American Indian History and Policy 3 s.h.

Additional course work, including courses selected from the list of approved AINSP courses (see “Associated Courses”) 12 s.h.
Courses applied toward the AINSP certificate also may be used to complete the General Education Program or the requirements for a major or a minor. However, students may not use more than 6 s.h. of course work from their major to satisfy the AINSP undergraduate certificate. The certificate is awarded only upon completion of a bachelor’s degree. Holders of Iowa baccalaureate degrees may return to complete the requirements for a certificate. Students may not earn both a certificate and a minor in American Indian and native studies.

Students are encouraged to register their intent to pursue the AINSP certificate with the Division of Interdisciplinary Programs. In order to receive the certificate, students must contact the division office when they submit their Application for Degree, before graduation.

**Minor**

To earn a minor in American Indian and native studies, students must complete 15 s.h. in courses chosen from the list of approved AINSP courses, with a g.p.a. of at least 2.00. At least 12 s.h. must be chosen from University of Iowa upper-level courses. This course work must include the following.

149:049 Introduction to American Indian and Native Studies 3 s.h. 
149:101 American Indian and Native Studies Seminar (taken two semesters) 2 s.h.

Additional course work, including courses selected from the list of approved AINSP courses (see “Associated Courses”), 11 s.h.

Students may not apply more than 6 s.h. of course work used to complete a major to complete the AINSP minor.

**Cultural Experience**

It is highly recommended that students have an in-depth American Indian cultural experience, usually through study or volunteer work, before they complete their undergraduate requirements. Students should consult AINSP faculty advisers about available options. With consent of the instructor, academic credit may be earned in 149:195 Directed Cultural Experience.

**Graduate Program**

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

Students pursuing the graduate certificate must earn at least 20 s.h. in courses numbered 100 or above chosen from the list of approved AINSP courses. They also must maintain a g.p.a. of at least 3.00 in AINSP courses counted toward the graduate certificate. The courses must include the following.

149:101 American Indian and Native Studies Seminar (taken two semesters) 2 s.h.

**Courses**

149:005 Literatures of Native American Peoples 3 s.h.

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

149:200 Native American Studies 3 s.h.

149:299 Independent Study Project 2 s.h.

Additional courses chosen from the list of approved AINSP courses 10 s.h.

The additional 10 s.h. must include courses selected from the list of approved AINSP courses (see “Associated Courses”). However, students may not use more than 6 s.h. of course work from their major field of study to satisfy the AINSP graduate certificate.

**Associated Courses**

In addition to the courses listed below, courses concerned in part with American Indians or with issues relevant to American Indians may be used as electives to satisfy requirements for the undergraduate certificate, the minor, and the graduate certificate, subject to AINSP faculty approval. For course descriptions, see the appropriate departmental sections of the Catalog.

**ANTHROPOLOGY**

113:020 Introduction to Midwestern Prehistory 3 s.h.
113:114 Native Peoples of Amazonia 3 s.h.
113:117 The Maya 3 s.h.
113:163 Archaeology of Mesoamerica 3 s.h.
113:166 The Aztecs, Their Predecessors, and Their Contemporaries 3 s.h.
113:167 North American Archaeology 3 s.h.

**ART AND ART HISTORY**

01H:002 Arts of Africa 3 s.h.
01H:104 American Indian Art 3 s.h.
01H:105 Art of Pre-Columbian America 3 s.h.
01H:199 Topics in Art History (when content is appropriate) 3 s.h.

**ENGLISH**

008:113 Native American Literature 3 s.h.
008:185 Native American Autobiography 3 s.h.

**HISTORY**

16A:131 The Frontier in American History to 1840 3 s.h.
149:070 Indians and Allies 3 s.h.

Contemporary social and cultural challenges facing American Indian individuals, families, and nations; addiction, mental illness, domestic violence, child abuse, incarceration, HIV/AIDS.

149:080 American Indian Revitalization Movements 3 s.h.

Sociocultural-political movements among indigenous peoples of North America, 18th century to present. Same as 032:082.

149:082 American Indian Women: Myth, Ritual, and Sacred Power 3 s.h.

Participation of women and girls in Native religious traditions; obstacles to knowing and understanding Native women’s religious roles and experiences. Same as 032:078.

149:090 Native American Religious Movements 3 s.h.

149:101 American Indian and Native Studies Seminar 1 s.h.

Historical and contemporary issues.

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

American Indian legal history, including history of federal Indian policy, reservations, treaties, sovereignty issues. Offered spring semesters.

149:110 Indians of North America 3 s.h.

Histories and cultures; emphasis on North America. GE: cultural diversity. Same as 113:110.

149:113 Native American Literature 3 s.h.

Same as 008:113.

149:114 American Southwest: A Historical Perspective 3 s.h.

Same as 16A:114.

149:115 Native North America I: Precontact-1789 3 s.h.

Same as 16A:115.

149:116 Native North America II: 1789-Present 3 s.h.

Same as 16A:116.

149:120 Native Peoples of the Plains 3 s.h.

Prehistoric, historic, and contemporary issues relating to native peoples of the Great Plains.

149:130 Museum Literacy and Historical Memory 3 s.h.

Same as 016:120.

149:135 American Indian Health 3 s.h.

Native American health issues; anthropological and historical perspectives, cultural aspects of traditional Indian medicine, governmental policies and the Indian Health Service. Same as 172:125.

149:168 American Indians in Film 3 s.h.

Creation and impacts of American Indian images in movies; role of native people in the creative process.

149:176 Indigenous Peoples in the International Legal System 3 s.h.

Art.

Historical and contemporary development of international law and institutions in relation to Native Americans, other indigenous peoples worldwide. Prerequisite: consent of instructor. Same as 091:635.

149:177 Indigenous Nations Law and Government 3 s.h.

Same as 091:313.

149:178 Indigenous Peoples under American Law 3 s.h.

Same as 091:303.

149:179 Indigenous and Minority People under International Law 3 s.h.

Same as 091:314.

149:180 Negotiate Drafting Treaties Intergovernmental Agreement Art.

Same as 091:318.

149:185 Native American Autobiography 3 s.h.

Same as 008:185.

149:195 Directed Cultural Experience Art.

In-depth American Indian cultural experience, such as study or volunteer work, supervised by an AINSP faculty member. Prerequisite: consent of instructor.

149:197 Independent Study Art.

149:199 Special Topics: American Indian and Native Studies Art.

American Indian and other indigenous peoples; concepts, problems, issues. Prerequisite: consent of instructor.
The center offers a graduate certificate in book arts and technologies through the Graduate College. The program’s principal objectives are:

- to place the interdisciplinary study of book history, arts, and technologies in academic and aesthetic contexts;
- to provide a structured program for graduate students in art, English, history, library and information science, and other departments who are seriously interested in book studies; and,
- to give nongrade, graduate-level students who wish to study the book a framework for their study.

Students have two options in pursuing the certificate. Graduate students enrolled in a degree program at Iowa may work concurrently toward the certificate and an M.A., M.F.A., or Ph.D. Students who wish to pursue the certificate but not a graduate degree may do so with nongrade status in the Graduate College.

Admission
Admission requires active standing in the Graduate College. Applicants submit a statement of purpose and evidence of scholarly or creative interest in the book. Associated faculty, staff, and graduate students in the School of Art and Art History, the School of Library and Information Science, history, English, computer science, University of Iowa Libraries, the Writers’ Workshop, and other areas offer a wide range of perspectives on the book as an aesthetic, cultural, and historical artifact. This interdisciplinary membership and the center’s many facilities combine to provide an exceptional environment for studying the history of the book, its evolution, and its future.

Undergraduate students are invited to add dimension to their majors in English, art, journalism, history, and other areas by taking center courses in the book crafts and book studies. Undergraduates also may include an emphasis on the book arts or on the cultural and historical aspects of the book in the interdepartmental studies major.

Certificate Program
The center offers a graduate certificate in book studies/book arts and technologies through the Graduate College.

Associated Courses

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<th>Course Code</th>
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<td>01L:130</td>
<td>The Media of Drawing</td>
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<td>108:100</td>
<td>Special Project for Undergraduates</td>
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<td>108:110</td>
<td>Papermaking</td>
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<td>108:111</td>
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<td>108:130</td>
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<td>Papercraft</td>
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<td>Introduction to Letterpress Printing</td>
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<td>Introduction to Bookbinding</td>
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<td>108:164</td>
<td>Bookbinding</td>
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<td>108:165</td>
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<td>108:167</td>
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<td>108:168</td>
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MEDIEVAL STUDIES

Director of Interdisciplinary Programs:
Helena Dettmer
Coordinator: Claire Spaulding
Undergraduate nondegree program: certificate in Medieval Studies
Web site: http://www.uiowa.edu/~medieval

Certificate

The medieval studies certificate gives undergraduate students a way to link study in three or more disciplines into an organized investigation of a rich, varied historical period. The certificate can be pursued as an elective interest or be combined with focused study in one of a number of areas—for instance, art and art history; cinema and comparative literature; classics; English; French and Italian; German; history; literature, science, and the arts; music; philosophy; religious studies; Spanish and Portuguese; theatre arts; or women’s studies.

The courses applied toward the requirements of the medieval studies certificate may be used to complete the College of Liberal Arts and Sciences General Education Program or requirements for a major or minor. However, students may not use more than 10 s.h. of course work used to complete a major, minor, or another certificate to satisfy requirements of the medieval studies certificate.

Holders of University of Iowa baccalaureate degrees may return to complete the requirements for a certificate. Up to 6 s.h. of transfer credit can be counted toward the certificate, with approval of the medieval studies advisory committee. Students should consult regularly with a medieval studies adviser in planning their course of study and while they work toward the certificate. Students are encouraged to declare the medieval studies certificate as the second field on their transcripts.

Requirements

Students must earn a minimum of 21 s.h. of credit in medieval studies course work from at least three departments and must demonstrate facility in a medieval language. All certificate students must take the following courses.

16E:110 Medieval Civilization (should be taken early in the plan of study) 3 s.h.
1008:140 Elementary Old English 4 s.h.
013:243 Middle High German 3 s.h.
20L:011 20L:012 Second-Year Latin I-II 6 s.h.
035:250 Medieval Spanish Literature 3 s.h.

Students may substitute course work in another medieval language with the approval of the medieval studies certificate advisory committee. Students are encouraged to register their intent to pursue the medieval studies certificate with the Division of Interdisciplinary Programs. In order to receive the certificate, students must contact the division office when they submit their Application for Degree, before graduation.

Associated Courses

The following courses are approved for the certificate. Students who wish to use a course not on this list to satisfy certificate requirements should request approval from the medieval studies certificate advisory committee.

Art and Art History

011:040 Introduction to Medieval Art 3 s.h.
011:136 Early Medieval Art 3 s.h.
011:137 Romanesque and Gothic Art 3 s.h.
011:199 Topics in Art History [when topic is medieval] 3 s.h.

Center for the Book

108:181/008:130 Literature and the Book (when topic is medieval) 3 s.h.
108:182/16E:120 The Book in the Middle Ages 3 s.h.
108:183/16E:118/021:258 The Transition from Manuscript to Print 3 s.h.

Classics

20L:016 Second-Year Latin I 4 s.h.
20L:017 Second-Year Latin II 4 s.h.
20L:198 Medieval Latin 3 s.h.

English

008:060 Selected Works of the Middle Ages 3 s.h.
008:101 Literature and Culture of the Middle Ages 3 s.h.
008:140/103:132 Elementary Old English 4 s.h.
008:141 Old English: Beowulf 3 s.h.
008:142 Medieval Celtic Literature 3 s.h.
008:144/049:181 Medieval Drama 3 s.h.
008:146 Chaucer 3 s.h.
008:160 Selected Themes in Literary Works (when topic is medieval) 3 s.h.

French

009:113 French Civilization 3 s.h.

German

13E:017 German Heroic and Erotic Literature of the Middle Ages 3 s.h.
013:243/103:252 Middle High German 3 s.h.

History

16E:051 Colloquium for History Majors (European) [when topic is medieval] 3 s.h.
16E:110 Medieval Civilization 3 s.h.
16E:111 Medieval Intellectual History 3 s.h.
The Division of Interdisciplinary Programs specializes in museums throughout the country. Since 1910. The program's students have become offered courses in museum studies continuously.

The College of Liberal Arts and Sciences has

Director of Interdisciplinary Programs: Helena Dietz

Academic coordinator: Kenneth Cmiel

Undergraduate nondegree program: certificate in museum studies

Web site: http://www.uiowa.edu/~museum

The College of Liberal Arts and Sciences has offered courses in museum studies continuously since 1910. The program's students have become directors, curators, educators, and exhibit specialists in museums throughout the country. The Division of Interdisciplinary Programs provides administrative and program support for museum studies. Both graduate and undergraduate students may take courses offered by the Museum Studies Program; the Certificate in Museum Studies is offered for undergraduate students.

A major in one of the natural sciences (e.g., biological sciences or geology), anthropology, science education, art history, American studies, or history is recommended for students preparing for museum careers. Undergraduate students may add the museum studies certificate to any of these majors or use the interdepartmental studies major to design their own plan of study by coordinating course work relevant to their academic areas of concentration and professional interests.

Courses offered by the Museum Studies Program provide an introduction to fundamental museological subjects, including background in the history, organization, function, and management of museums as well as experience in exhibition planning and design, collection management, and education outreach development.

Museum studies courses are of value not only to students intending to pursue careers in museums but also to those with related interests in the arts, sciences, or humanities. Museum studies is useful in many career areas, including archaeology, anthropology, history, American studies, communication studies, elementary and secondary education, historic preservation, library science, recreation and leisure, art history and studio art, and science education.

Certificate

The certificate requires a minimum of 21 s.h. of credit. All students take 024:102 Introduction to Museology (3 s.h.), which provides a historical overview of the development and function of museums and introduces students to issues such as museum governance and financing, ethics and law, collection management, exhibition and educational programming, interpretation, and audience research. Ideally, this is the first course students take in the certificate program.

Students also select three courses (minimum of 9 s.h.), one from each of the following four categories, and two additional courses (minimum of 6 s.h.), which may come from any of the four categories:

- Museum administration and management
- History, theory, and culture
- Exhibition development and public education
- Collection management and care

The Museum Studies Program's web site lists courses that count toward the certificate. Students also may request permission to use courses not on the program's list, providing the content of the course and the student's work in the course fits into one of the program's defined areas.

After completing at least 15 s.h. of foundation course work, as described above, students complete an internship (minimum of 3 s.h.). The academic coordinator works closely with students and affiliated faculty members to ensure that internships provide students with the instruction and experience they need.

Courses applied toward the museum studies certificate also may be used to complete the College of Liberal Arts and Sciences General Education Program or requirements for a major or minor. However, students may not use more than 6 s.h. of course work applied toward another major, certificate, or minor to complete the requirements of the certificate in museum studies.

Students interested in the museum studies certificate are encouraged to meet with an adviser in the Division of Interdisciplinary Programs office. Those intending to complete a certificate should fill out the division's form (available online and at the division office).

Museum Facilities

The University of Iowa has several excellent museum facilities. The Museum of Natural History, founded in 1858, is the oldest university museum west of the Mississippi River. It houses exhibits on North American and Iowa geology, biological sciences, and Native American cultures. Students can gain first-hand experience through supervised participation in its programs.

The University of Iowa Museum of Art houses significant collections of more than 9,000 objects and several outstanding collections, among them the Stanley Collection of African art, the Mauricio Lasansky print collection, and the Elliott Collection of pre-Columbian and 19th- and 20th-century art. The historic building that was Iowa's last territorial and first state capitol from 1842 to 1857 has become the Old Capitol Museum. University of Iowa Hospitals and Clinics houses the Medical Museum, with artifacts and displays on the history of medicine.

Students also can learn from a number of smaller collections that are available on campus and in the Iowa City area.

Courses

024:102 Introduction to Museology

3 s.h.

Overview of museum history, function, philosophy, collection and curatorial practices, governance and funding issues, evaluation, audience studies; American cultural institutions. GE: Humanities. Same as 07S:112, 097:115, 113:103, 169:102.

024:104 Exhibition Planning and Design

3 s.h.

The process of developing exhibitions; creative problem solving, interpretive design, defining communication objectives, selecting objects and exhibit media, producing concept drawings, prototyping labels to produce a design brief. Prerequisite: 024:102 or consent of instructor.

024:106 Museum Laboratory Methods

2 s.h.

Techniques used to prepare classroom teaching materials and museum exhibit accessories; instruction in casting, mold-making, and modeling procedures used in replication or preservation of archaeological, historical, geological, or biological materials.

024:108 The Image in America

3 s.h.

Same as 16A:108.

024:119 Writing for Interdisciplinary Audiences

3 s.h.


024:120 Collection Care and Management

3 s.h.

How a museum's management policy relates to its administrative, legal, and ethical obligations to its collections; acquisitions, deaccessions, collection use, data standards, storage environment, health, safety, documentation. Same as 012:120.

024:147 Nonprofit Organizational Effectiveness I

3 s.h.

Operational and financial aspects of nonprofit management, including organization mission and governance, strategic planning...
Students must earn 21 s.h. with a g.p.a. of at least 2.00 in courses chosen from the list of required and elective courses approved for the certificate.

Course work must include the following.

Both of these:

154:110 Introduction to Sexuality Studies 3 s.h.

154:180 Seminar in Sexuality Studies 3 s.h.

At least two of these:

154:060 Sexuality and Popular Culture in the Postwar U.S. 3 s.h.

154:120 Lesbian, Gay, Bisexual, and Transgender Identities 3 s.h.

154:130 Diverse Sexual Communities 3 s.h.

154:135 Performing America Queerly 3 s.h.

154:185 Sexualities in Hispanic Cultures 3 s.h.

The remaining 9 s.h. are earned in courses chosen from those offered by the Program in Sexuality Studies or from the list of approved associated courses, which varies from year to year. Information is available from the Division of Interdisciplinary Programs office.

In keeping with the interdisciplinary nature of sexuality studies, students are encouraged to choose these electives from different disciplines.

Courses applied toward the sexuality studies certificate also may be used to complete the College of Liberal Arts and Sciences General Education Program or to satisfy requirements of a major or minor.

Of the 21 s.h. required for the certificate, at least 9 s.h. must be earned at The University of Iowa. Transfer work is evaluated by the program coordinator.

The certificate is awarded upon completion of a bachelor’s degree. Holders of Iowa baccalaureate degrees may return to complete the requirements for a certificate. Holders of baccalaureate degrees from other institutions who are not enrolled in a graduate or professional program at The University of Iowa may apply for admission to the College of Liberal Arts and Sciences and are awarded the certificate upon completion of the requirements.

Students are encouraged to register their intent to pursue the sexuality studies certificate with the Division of Interdisciplinary Programs. In order to receive the certificate, students must contact the division office when they submit their Application for Degree, before graduation.

**Associated Courses**

Other courses may be approved for the certificate.

**AMERICAN STUDIES**

045:060/008:050/154:060 Sexuality and Popular Culture in the Postwar U.S. 3 s.h.

045:155/049:115/154:135 Performing America Queerly 3 s.h.

045:157 Gender on Stage 3 s.h.

**ANTHROPOLOGY**

113:154 Anthropologies and Sexualities 3 s.h.
Courses

154:029 First-Year Seminar 1-2 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

154:060 Sexuality and Popular Culture in the Postwar U.S. 3 s.h.
Introduction to the study of postwar American popular culture from a sexuality studies perspective. Same as 008:050, 045:060.

154:069 Topics in Sexuality Studies 1-3 s.h.
Focus on a specific aspect of human sexuality; topics vary.

154:071 Sexual Ethics 3 s.h.
Same as 032:071.

154:095 Seminar in Interdisciplinary Studies 3-4 s.h.
Same as 008:095.

154:110 Introduction to Sexuality Studies 3 s.h.
Theoretical perspectives on human sexualities drawn from medicine, law, social sciences, the humanities; cultural meanings of heterosexual, lesbian, gay, bisexual, transgender identities.

154:115 Group Facilitation in Human Sexuality 3 s.h.
How to lead small group discussions on topics relating to human sexuality. Prerequisite: 07C:112 or 042:112 or 096:112.

154:119 Writing for Interdisciplinary Audiences 3 s.h.

154:120 Lesbian, Gay, Bisexual, and Transgender Identities 3 s.h.
Historical and contemporary experiences of sexual minorities; identity, community, culture, art, politics, representation, diversity, assimilation.

154:121 Gender and Sexuality in the Ancient World 3 s.h.
Approved for GE: foreign civilization and culture. Same as 20E:150, 131:152.

154:130 Diverse Sexual Communities 3 s.h.
Intersections of sexual identities with race, class, gender, age, religion, other personal identities associated with experiences of oppression, resistance.

154:135 Performing America Queerly 3 s.h.

154:180 Seminar in Sexuality Studies 3 s.h.
Skill development in developing, presenting, discussing research on current topics in the field. Prerequisites: 154:110 and two additional 154-prefix courses.

154:185 Sexualities in Hispanic Cultures 3 s.h.
Historical, social, and theoretical concepts of sexuality in Spanish, Spanish American, and U.S. Latino/a cultures; construction of gender and sexual identity. Prerequisite: 154:110 or consent of instructor. Same as 035:193.

154:199 Independent Study 1-3 s.h.
Directed readings, artistic or creative endeavors, research projects. Prerequisite: 154:110.

The certificate program is designed not only for undergraduate students who intend to pursue careers in international business but for any undergraduate interested in gaining a better understanding of the global economy and a broader awareness of the political, historical, and social environment in which international business operates. The range of courses in the program permits students to tailor areas of specialization suited to their individual interests and to complement majors in both liberal arts and sciences and business.

When students complete the certificate requirements and graduate, the notation “Certificate in International Business” is added to their transcript. Questions should be directed to the Tippie College of Business Undergraduate Program Office or the CLAS Academic Programs & Services office.

Application
Undergraduate students pursuing a degree from The University of Iowa are eligible to work toward the certificate in international business. Students who already have earned a baccalaureate degree from The University of Iowa may return to complete or earn a certificate in international business if they are not enrolled in a graduate or professional program (contact the Office of Admissions). Holders of baccalaureate degrees from other institutions who are not enrolled in a graduate or professional program may enroll at The University of Iowa to complete a certificate in international business (contact the Office of Admissions). Interested students must declare their intention to pursue the certificate with an international business certificate adviser and must submit a plan of study. Students admitted to the Tippie College of Business or advised at the college’s Undergraduate Program Office should consult an adviser in that office. Students in the College of Liberal Arts and Sciences should consult an adviser in the College of Liberal Arts and Sciences.

Requirements
The certificate requires 29 s.h. of course work plus satisfaction of the foreign language requirement (required credit varies according to language studied). Students must maintain a g.p.a. of at least 2.00 on all international business certificate course work. Courses used to satisfy the certificate may not be taken pass/no pass. A course may not be used to satisfy more than one certificate requirement.

A minimum of 20 s.h. of certificate course work (other than language courses) must be completed at The University of Iowa or in approved study abroad programs. Students who want to use credit earned while studying abroad should consult an international business certificate adviser before leaving campus. Guided Independent Study (correspondence study) is accepted toward the certificate.

The certificate requires course work in international business, international relations and institutions, foreign language, and area studies, as follows.

INTERNATIONAL BUSINESS
These courses provide students with an essential understanding of economics, which is central to all business operation. They also help students develop knowledge of the functional areas of international business.

Both of these: 06E:001 Principles of Microeconomics 3-4 s.h.
06E:002 Principles of Macroeconomics 3-4 s.h.

Three of these (total of 9 s.h.):
06E:125 International Economics 3 s.h.
06E:129 Economic Growth and Development 3 s.h.
06E:164 Economies in Transition 3 s.h.
06E:173 Advanced International Economics 3 s.h.
06F:130 International Finance 3 s.h.
06J:146 International Business Environment 3 s.h.
06M:151 International Marketing 3 s.h.
091:282 International Business Transactions 3 s.h.
091:287 International Trade Law: Basic Norms and Regulation 3 s.h.

INTERNATIONAL RELATIONS AND INSTITUTIONS
These courses familiarize students with comparative politics, social geography, foreign policy, and issues related to world population and the environment—topics relevant to decision making in the international business world.

Two of these (total of 6 s.h.):
16A:152 United States in World Affairs 3 s.h.
16W:138/152:138 History of International Health 3 s.h.
019:156 Comparative Communication Systems 3 s.h.
030:040 Introduction to the Politics of Industrial Democracies 3 s.h.
030:041 Introduction to the Politics of Russia and Eurasia 3 s.h.
030:042 Introduction to the Politics of Developing Areas 3 s.h.
030:060 Introduction to International Relations 3 s.h.
030:061 Introduction to American Foreign Policy 3 s.h.
030:149 Problems in Comparative Politics 3 s.h.
030:150 Politics of Emerging Market Economies 3 s.h.
030:151 Political Leadership 3 s.h.
030:155 Social Movements and Collective Action 3 s.h.
030:156 Ethnic Conflict in the International Arena 3 s.h.
030:160 International Politics 3 s.h.
030:161 International Organization and World Order 3 s.h.
030:162 American Foreign Policies 3 s.h.
030:164 International Systems: Continuity and Change 3 s.h.
030:165 International Conflict 3 s.h.
030:166 Global Political Communication 3 s.h.
030:167 Politics and the Multinational Enterprise 3 s.h.
030:168 Politics of Terrorism 3 s.h.
030:149 Problems of International Politics 3 s.h.
030:170 The Politics of International Economics 3 s.h.
030:173 Voluntary Organization and Politics in Comparative Perspective 3 s.h.
030:177 Globalization and Its Discontents 3 s.h.
091:193 Human Rights in the World Community: Problems of Law and Policy 3 s.h.
091:195 Introduction to Public International Law 3 s.h.
034:159 Families in Comparative Perspective 3 s.h.
036:042/042:042 Intercultural Communication 3 s.h.
044:010 The Contemporary Global System 4 s.h.
044:011 Population Geography 3 s.h.
044:015 Introduction to Political Geography 3 s.h.
044:030 The Global Economy 3 s.h.
044:035 World Cities 3 s.h.
044:094 International Development 3 s.h.
044:132 Geography of Contemporary Europe 3 s.h.
044:163 Geography of Newly Industrializing Countries 3 s.h.
044:172 Development Planning and Policy 3 s.h.
044:176 Social Consequences of Global Change 3 s.h.
044:194 Geographic Perspectives on Development 3 s.h.
113:010 Anthropology and Contemporary World Problems 3 s.h.
113:134 Diaspora Cultures 3 s.h.
113:137 Anthropology of Tourism 3 s.h.
113:143 Environment and Culture 3 s.h.
113:144 Culture and Consumption 3 s.h.
113:145 Economic Anthropology of the Third World 3 s.h.
113:151/034:151 Sociology of the Third World 3 s.h.
113:175/131:175 Gender and Development Studies 3 s.h.
113:181/129:151 Race, Ethnicity, and International Relations 3 s.h.

FOREIGN LANGUAGE

This component enables students to develop an intermediate level of competence in a second language. Through language study, students not only gain insight into the culture of another region of the world, they also develop a deeper understanding of their own language and culture.

Students must complete an approved foreign language sequence. For questions about languages not listed below or about study abroad course work, see an international business certificate adviser.

Chinese
One of these sequences:
039:008-039:009 First-Year Chinese: First and Second Semesters 10 s.h.
039:100-039:101 Advanced First-Year Chinese: First and Second Semesters 10 s.h.
039:010-039:011 Second-Year Chinese: First and Second Semesters 10 s.h.

French
One of these sequences:
009:001-009:002 Elementary French I-II 8 s.h.
009:010 First-Year French Review 5 s.h.

German
One of these:
013:011-013:012 Elementary German I-II (both courses) 8 s.h.
013:013 Intensive Elementary German 6 s.h.
013:014 First-Year German Review 5 s.h.

All of these:
009:011-009:012 Intermediate French I-II (both courses) 8 s.h.
A course for which 009:012 is prerequisite (may include credit from the Iowa Regents Program)

Hindi
Both of these sequences:
039:031-039:032 First-Year Hindi: First and Second Semesters 10 s.h.
039:033-039:034 Second-Year Hindi: First and Second Semesters 8 s.h.

Italian
One of these:
018:001-018:002 Elementary Italian I-II (both courses) 8 s.h.
018:103 Intensive Elementary Italian 6 s.h.

One of these:
018:011-018:012 Intermediate Italian I-II (both courses) 8 s.h.
A course for which 018:012 is prerequisite

Japanese
One of these sequences:

Portuguese
One of these:
038:100 Accelerated Elementary Portuguese 0-5 s.h.
038:102 Portuguese for Spanish Speakers 3 s.h.

Both of these:
038:101 Accelerated Intermediate Portuguese 0-5 s.h.
A course for which 038:101 is prerequisite

Russian
All of these:
041:001-041:002 First-Year Russian I-II 8 s.h.
041:003-041:004 Second-Year Russian I-II 8 s.h.

A course for which 041:004 is prerequisite

Spanish
One of these:
035:001-035:002 Elementary Spanish I-II (both courses) 8 s.h.
035:005 Elementary Spanish Review 5 s.h.

One of these:
035:011-035:012 Intermediate Spanish I-II (both courses) 8 s.h.
035:013 Accelerated Intermediate Spanish 6 s.h.

A course for which 035:012 is prerequisite

Swahili
Both of these sequences:
103:017-103:018/129:017-129:018 Intermediate Swahili I-II 8 s.h.

Zulu
Both of these sequences:

AREA STUDIES

These courses help students learn about the culture, contemporary history, art, literature, and politics of the geographic region in which their second language is spoken. They cover topics critical to understanding sociocultural influences on individuals with whom students share the world, and with whom they may conduct business.

Students complete 6 s.h. from one geographic area. The area should be appropriate to the language the student chooses for the language requirement.

Asia
Appropriate for these languages: Chinese, Hindi, or Japanese
01H:016/039:016 Asian Art and Culture 3 s.h.
016:005/039:055 Civilizations of Asia: China 3 s.h.
016:006/039:056 Civilizations of Asia: Japan 3 s.h.
16W:194/039:134 Imperialism and Modern India 3 s.h.
16W:196/039:154 Modern China 1600s to 1920s 3 s.h.
16W:198/039:196 China since 1927 3 s.h.
026:144/032:174 Indian Philosophy 3 s.h.
026:145/032:175 Buddhist Philosophy 3 s.h.
030:143/039:178 Government and Politics of the Far East 3 s.h.
030:148 Government and Politics of China 3 s.h.
034:163 Chinese Foreign Policy 3 s.h.
032:004/039:064 Living Religions of the East 3 s.h.
032:006/039:006 Introduction to Buddhism 3 s.h.
032:008/039:018 Asian Humanities: India 3 s.h.
032:009/039:019 Asian Humanities: China 3 s.h.
032:177/039:136 Indian Literature 3 s.h.
034:154 Society and Politics in East Asia 3 s.h.
039:015 Introduction to Chinese Culture 3 s.h.
039:020/032:007 Asian Humanities: Japan 3 s.h.
039:026/016:007 Civilizations of Asia: South Asia 3 s.h.
039:122/113:129 Language/Politics of Culture in South Asia 3 s.h.
039:145/008:127/048:106 Topics in Asian Cinema 3 s.h.
039:150/048:158 East-West Literary Relations 3 s.h.
039:180 Modern Chinese Writers 3 s.h.
039:192/048:192 East Meets West: A Cross-Cultural Course 3 s.h.
039:197/131:197 Gender in Chinese Literature and Culture 3 s.h.
039:199 Asian Studies 3 s.h.
39:103 Language in Japanese Society 3 s.h.
39:125/113:125 Japanese Society and Culture 3 s.h.
39:141 Traditional Japanese Literature in Translation 3 s.h.
39:142/048:142 Modern Japanese Fiction in Translation 3 s.h.
39:144 Major Authors in Modern Japanese Literature 3 s.h.
39:155 Contemporary Japanese Culture 3 s.h.
113:107/131:107 Gendering India 3 s.h.

Europe
Appropriate for these languages: French, German, Italian, Portuguese, or Spanish

008:124/048:127 Topics in British and Irish Film 3 s.h.
009:030 Cultural Misunderstandings: France and U.S.A. 3 s.h.
009:110 Introduction to French Literature and Film 3 s.h.
009:114 French Civilization 3 s.h.
009:116 Cinema, Society, and Culture in 20th-Century France 3 s.h.
009:130 Paris and the Art of Urban Life 3 s.h.
009:147/048:105 French Cinema 3 s.h.
009:168/048:168 Post-Colonial Literature in France 3 s.h.
013:101 Introduction to German Literature 3 s.h.
013:105 German Cultural History 3 s.h.
013:108 The German Media 3 s.h.
013:112 Twentieth-Century German Literature 3 s.h.
013:115 Contemporary German Civilization 3 s.h.
013:117 Current Issues 3 s.h.
13E:119 German Film 3 s.h.
16E:135 Twentieth-Century Europe: The Nazi Era 3 s.h.
16E:136 Twentieth-Century Europe: The Cold War and After 3 s.h.
16E:144 Modern France, 1870-1940 3 s.h.
16E:146 France from 1815 to the Present 3 s.h.
16E:148/131:182 Society and Gender in Europe 1750-Present 3 s.h.
16E:152 Modern Britain 1867-Present 3 s.h.
16E:156 Germany since 1914: Weimar, Hitler, and After 3 s.h.
16E:161 Politics and Culture in Twentieth-Century Europe 3 s.h.
018:105 Modern Italian Fiction 3 s.h.
018:106 Modern Italian Poetry and Drama 3 s.h.
018:132 Images of Modern Italy 3 s.h.
030:040 Introduction to the Politics of Industrial Democracies 3 s.h.
030:140 Government and Politics of Europe 3 s.h.
030:176 French Politics and Society 3 s.h.
035:110 Readings in Spanish Literature and Culture 3 s.h.
035:150 Spanish Civilization 3 s.h.
035:152 Modern Spanish Literature 3 s.h.
035:161 Masterpieces of Modern Spanish Literature 3 s.h.
038:107 Introduction to Portuguese Literature 3 s.h.
038:114 Culture and Civilization of the Portuguese-Speaking World 3 s.h.
048:021 European Film History 3 s.h.
048:104 Topics in European Film History 3 s.h.

Latin America
Appropriate for these languages: Portuguese or Spanish

16W:110 Topics in Latin American History 3 s.h.
16W:112 Introduction to Modern Latin America 3 s.h.
16W:114 Latin America and the U.S.: Historical Perspective 3 s.h.
16W:115 Latin American Revolution 3 s.h.
030:042 Introduction to the Politics of Developing Areas 3 s.h.
030:144 Latin American Government 3 s.h.
030:145 Latin American Political Parties 3 s.h.
035:020 Contemporary Spanish American Narrative 3 s.h.
035:036/130:020 Contemporary Latin American Studies 3 s.h.
035:111 Readings in Spanish American Literature and Culture 3 s.h.
035:130 Spanish American Civilization 3 s.h.
035:131 Contemporary Spanish American Fiction 3 s.h.
035:132 Spanish American Poetry 3 s.h.
035:133 Spanish American Theater 3 s.h.
035:134 Spanish American Short Story 3 s.h.
035:136 Culture and Language in the Andes 3 s.h.
035:144/131:162 Latin American Women Writers 3 s.h.
035:145/048:145 Latin American Cinema 3 s.h.
035:175 Cultural Identity in Caribbean Literature 3 s.h.
035:179 Survey of Twentieth-Century Puerto Rican Literature 3 s.h.
038:020 Contemporary Brazilian Narrative 3 s.h.
038:106 Brazilian Literature II 3 s.h.
038:112 Topics in Luso-Brazilian Literature 3 s.h.
038:114 Culture and Civilization of the Portuguese-Speaking World 3 s.h.
113:114 Native Peoples of Amazonia 3 s.h.
113:130 Latin America: Cultural Politics 3 s.h.
113:131 Latin American Economy and Society 3 s.h.

Middle East/Africa
Appropriate for these languages: Swahili, Zulu, or proficiency in another contemporary Middle Eastern or African language

01H:111 Art and Independence in West Africa 3 s.h.
008:119/129:119 African Literature 3 s.h.
008:159/048:159/187:159 African Literature Today 3 s.h.
08G:014/098:008:008 Languages of the African Peoples 3 s.h.
009:120 French-Speaking Cultures 3 s.h.
009:146 Francophone Cinema 3 s.h.
009:163/129:135 Francophone Literature of the African Diaspora 3 s.h.
16W:121/129:164 African History since 1880 3 s.h.
030:042 Introduction to the Politics of Developing Areas 3 s.h.
030:146/044:161 African Development 3 s.h.
030:150 Politics of Emerging Market Economies 3 s.h.
032:167 Islam in the Modern World 3 s.h.
032:168 Religion and Politics in the Middle East 3 s.h.
044:161/030:146 African Development 3 s.h.
044:164 The Middle East 3 s.h.
113:104 Inside/Outside the Middle East 3 s.h.
113:113/129:113 Africans in the New World 3 s.h.
129:107 Introduction to the Art of West Africa 3 s.h.
129:110 Introduction to the Art of Central Africa 3 s.h.

Russia/Eastern Europe
Appropriate for these languages: Russian, or proficiency in a modern Slavic language

16E:178 Soviet Union 1917-1945 3 s.h.
16E:179 Soviet Union 1945-1991 3 s.h.
030:041 Introduction to the Politics of Russia and Eurasia 3 s.h.
030:141 Russian/Post-Soviet Politics 3 s.h.
030:142 Tracking Democratization in Post-Communist States 3 s.h.
030:147 Ethnicity, Nationalism, and States in Transition 3 s.h.
030:159 Government and Politics of Eastern Europe 3 s.h.
041:098 Introduction to Russian Culture 3 s.h.
041:100 Russian Literature in Film 3 s.h.
041:101 Russian Literature in Translation 1800-1860 3 s.h.
041:102/048:107 Russian Literature in Translation 1860-1917 3 s.h.
041:103 Russian Literature since 1917 3 s.h.
041:104/152:170/174:170 Health Care and Health Care Reforms in Russia 3 s.h.
041:128 Topics in Russian Music and Culture 3 s.h.
041:155/008:150 Tolstoy and Dostoevsky 3 s.h.
041:160 Women in Russian Society 3 s.h.
041:164/048:164 Topics in Russian/East European/Eurasian Studies 3 s.h.
041:168/048:154 20th-Century Czech Authors 3 s.h.
041:187 Topics in Russian Language and Civilization I 3 s.h.
041:188 Topics in Russian Language and Civilization II 3 s.h.
187:099 Introduction to Russia, the Soviet Union, and Successor States 3 s.h.
**Latin American Studies**

**Codirectors:** Daniel Balderson (Spanish and Portuguese), Michael Chitinik (Anthropology), Claire Fox (English), Mercedes M. Nito-Murcia (Spanish and Portuguese)

**Undergraduate nondegree programs:** certificate, minor in Latin American Studies

**Web site:** [http://www.uiowa.edu/~intl/links/lasp/lasp_home.htm](http://www.uiowa.edu/~intl/links/lasp/lasp_home.htm)

The Latin American Studies Program (LASP) is interdisciplinary, focusing on the history, politics, social organization, economy, geography, music, religion, art, and literature of Central and South America, Mexico, and the Caribbean. Faculty members from across the College of Liberal Arts and Sciences participate in the Latin American Studies Program as affiliated faculty members. Other University of Iowa faculty members occasionally offer courses and participate in the program's research, study, and interdisciplinary activities.

The Latin American Studies Program prepares students for graduate study or for Latin America-related careers in business, communications, government, bilingual/bicultural education, secondary teaching, community organizing, and international work.

In addition to its instructional activity, LASP sponsors a wide variety of activities, brings scholars of Latin America to campus, and fosters institutional linkages.

Students may earn an undergraduate certificate or minor in Latin American studies. The certificate or minor may be earned in conjunction with the major in international studies. Or it may be combined with study in a number of other programs, including majors in anthropology, history, political science, and Spanish and Portuguese; minors in any of these disciplines; or the international business certificate. All students plan their programs in close cooperation with Latin American studies advisers.

**Programs**

**Certificate**

Students pursuing the certificate in Latin American studies must earn at least 24 s.h. with a g.p.a. of at least 2.00 in courses chosen from the list of LASP-approved courses (see “Approved LASP Courses”), These courses must include the following:

- 130:020 Contemporary Latin American News Colloquium 3 s.h.
- 130:176 Latin American Studies Seminar 3 s.h.
- 130:115 Topics in Latin American Studies Seminar 3 s.h.

Courses applied toward the LASP certificate may be used to complete the General Education Program or the requirements for a major or a minor. The certificate is awarded only upon completion of a bachelor’s degree. Holders of Iowa baccalaureate degrees may return to complete the requirements for a certificate. A student may not be awarded both a minor and a certificate in Latin American studies.

**Minor**

To earn a minor in Latin American studies, students complete 15 s.h. in courses selected from the list of LASP-approved courses, with a g.p.a. of at least 2.00. To preserve the interdisciplinary character of the Latin American studies minor, students majoring in anthropology, history, political science, or Spanish and Portuguese may not count more than 6 s.h. from courses in their major department toward the minor. At least 12 of the 15 s.h. must be taken in advanced courses (100-level or above) at The University of Iowa. Students are strongly encouraged to take either or both of the following:

- 130:020 Contemporary Latin American News Colloquium 3 s.h.
- 130:176 Latin American Studies Seminar 3 s.h.

**Study Abroad**

It is highly recommended, though not required, that students have an in-depth Latin American cultural experience, usually through a study abroad program, before completing their undergraduate requirements.

In cooperation with the Office for Study Abroad, LASP faculty members facilitate student participation in programs in many different Latin American countries. Such programs range from intensive language study to group programs with a special focus. University of Iowa-sponsored study abroad programs include summer programs with Universidad de Guanajuato in Mexico, Universidad de los Andes in Venezuela, and a health and nutrition program in Pontificia Universidad Catolica Madre y Maestra in the Dominican Republic.

University of Iowa students may enroll in programs in Argentina, Brazil, Chile, Colombia, Costa Rica, Cuba, the Dominican Republic, Honduras, Mexico, and Uruguay. The University of Iowa cosponsors these programs through various consortiums.

Courses taken through study abroad programs may be counted toward requirements for the certificate and the minor, subject to prior approval by the LASP director.

**Course Work**

In addition to the courses listed below, courses concerned in part with Latin America sometimes may be used as electives to satisfy the requirements for the certificate or the minor. Students should consult the LASP director. For course descriptions, see the appropriate departmental sections of the Catalog.

**Latin American Studies**

- 130:020 Contemporary Latin American News Colloquium (required for certificate students, recommended for minors) 3 s.h.
- 130:105 Independent Study arr.
- 130:115 Topics in Latin American Studies arr.
- 130:176 Latin American Studies Seminar (required for certificate students, recommended for minors) 3 s.h.

**Approved LASP Courses**

**Anthropology**

- 113:114 Native Peoples of Amazonia 3 s.h.
- 113:117 The Maya 3 s.h.
- 113:118 Social Anthropology of the Caribbean 3 s.h.
- 113:130 Latin America: Cultural Politics 3 s.h.
- 113:131 Latin American Economy and Society 3 s.h.
- 113:151 Sociology of the Third World 3 s.h.
- 113:163 Archaeology of Mesoamerica 3 s.h.
- 113:166 The Aztecs, Their Predecessors, and Their Contemporaries 3 s.h.

**Art**

- 01H:105 Art of Pre-Columbian America 3 s.h.

**Communication Studies**

- 036:152 Latin American Media 3 s.h.

**History**

- 16W:110 Topics in Latin American History 3 s.h.
- 16W:111 Colonial Latin America 3 s.h.
- 16W:112 Introduction to Modern Latin America 3 s.h.
- 16W:114 Latin America and the U.S.: The Historical Perspective 3 s.h.

**Music**

- 025:104 Music of Latin America and the Caribbean 3 s.h.
- 025:163 Steel Band 1 s.h.

**Political Science**

- 030:144 Latin American Government 3 s.h.
- 030:145 Latin American Political Parties 3 s.h.

**Portuguese**

- 038:105 Brazilian Literature I 3 s.h.
- 038:106 Brazilian Literature II 3 s.h.
- 038:112 Topics in Luso-Brazilian Literature 3 s.h.
- 038:114 Culture and Civilization of the Portuguese-Speaking World 3 s.h.
- 038:120 Topics in Luso-Brazilian Culture 3 s.h.

**Spanish**

- 035:111 Readings in Spanish American Literature and Culture 3 s.h.
- 035:113 Screening Latin America 3 s.h.
- 035:124 Introduction to Bilingualism 3 s.h.
- 035:130 Spanish American Civilization 3 s.h.
- 035:131 Contemporary Spanish American Fiction 3 s.h.
- 035:132 Spanish American Poetry 3 s.h.
- 035:133 Spanish American Theater 3 s.h.
- 035:134 Spanish American Short Story 3 s.h.
Financial Aid

Students are encouraged to apply for a Stanley Undergraduate Scholarship for International Research/Fieldwork through University of Iowa International Programs. The scholarships are awarded to outstanding University of Iowa undergraduates who, in close consultation with a faculty member, propose well-conceived, small-scale research or fieldwork projects that require travel abroad. Students may conduct projects while participating in a study abroad program and may combine the scholarship with other awards and financial assistance. For information regarding other scholarships, contact LASP advisers, International Programs staff, and the LASP director.

Visitors, Activities

In addition to its instructional activity, LASP organizes a range of public programming activities each semester, including film series, photography and art exhibits, conferences, roundtable discussions, and lectures. Recent events have included an international conference on contemporary Cuba and speakers on cinema, indigenous movements, human rights, and art.

Courses

130:020 Contemporary Latin American News Colloquium 3 s.h.
Communication issues at transnational, national, grassroots levels; emphasis on political, socioeconomic themes; contemporary affairs as reported in Latin American press, other media. Same as 035:036.

130:105 Independent Study arr.

PHILOSOPHIES AND ETHICS OF POLITICS, LAW, AND ECONOMICS

Coordinator: Diane Jeske
Undergraduate nondegree program: certificate in Philosophies and Ethics of Politics, Law, and Economics
Web site: http://www.uiowa.edu/~people

The College of Liberal Arts and Sciences offers an interdisciplinary program that leads to the Certificate in Philosophies and Ethics of Politics, Law, and Economics.

The Philosophies and Ethics of Politics, Law, and Economics (PEOPLE) Program is based on the assumption that societies institutionalize values; they guide conduct by regulating opportunities, prescribing behavior, and influencing beliefs and attitudes. The goal of the PEOPLE program is to help students understand and evaluate these complex relationships by examining them from a variety of perspectives.

The PEOPLE program may be especially attractive to students who are planning to attend law school after graduation. Students considering a career in planning, politics, or public administration also may find the PEOPLE program highly useful.

Undergraduates in economics, philosophy, political science, and sociology may discover that they will meet many of the PEOPLE program requirements in the process of completing the requirements for their major or minor. However, a major or minor in one of these disciplines is not a requirement of the program.

Students who complete the PEOPLE program earn a certificate, and the notation “Certificate in the Philosophies and Ethics of Politics, Law, and Economics” appears on their transcripts. The certificate is awarded upon completion of a bachelor’s degree. Holders of Iowa baccalaureate degrees may return to complete the requirements for a certificate.

Certificate

Students must complete a 36 s.h. course of study with a g.p.a. of at least 2.00 to earn the PEOPLE certificate. The final 18 s.h. used to complete the certificate must be taken at The University of Iowa.

Because of the program’s multiple requirements, students are encouraged to begin the program as first-year students or sophomores; however, with careful planning, students who join the program as juniors can complete the requirements by their normal graduation date, especially if they have already taken several courses that satisfy PEOPLE requirements. Students interested in enrolling in the PEOPLE program should contact the program director.

The program consists of two parts: the foundation, made up of six courses (18 s.h.), and the fields, also made up of six courses (18 s.h.). The foundation is the common element in the program. The five fields—economics, law, philosophy, political science, and sociology—provide opportunities for specialization.

Foundation

Students must take the following six courses. The first two (026:036 or 026:103, and 026:001 or 026:102) are best satisfied during the first or sophomore year.

One of these:
026:036 Principles of Reasoning 3 s.h.
026:103 Introduction to Symbolic Logic 3 s.h.
One of these:
026:001 Problems of Moral Reasoning 3 s.h.
026:102 Introduction to Ethics 3 s.h.
One of these:
026:034 Philosophy and the Just Society 3 s.h.
026:132 Introduction to Political Philosophy 3 s.h.
026:135 Philosophy of Law 3 s.h.
One of these:
030:020 Introduction to Politics 3 s.h.
030:030 Introduction to Political Thought and Political Action 3 s.h.
030:050 Introduction to Political Behavior 3 s.h.
030:070 Introduction to Political Communication 3 s.h.
One of these:
06E:001 Principles of Microeconomics 3-4 s.h.
06E:002 Principles of Macroeconomics 3-4 s.h.
One of these:
026:149 Undergraduate Seminar in Philosophy (requires consent of PEOPLE program director) 3 s.h.
033:125/091:629 A Dialogue Between Law and Philosophy 3 s.h.
033:151 Individuals and Institutions 3 s.h.
033:153/091:345 Hard Cases: Science Policy and Values 3 s.h.
033:155/091:343 Risk Technology and the Public 3 s.h.
033:175/01H:182/024:161 Art, Law, and Ethics 3 s.h.

Fields

Students must choose two of the following fields and complete three courses in each.

ECONOMICS

One of these:
06E:104 Microeconomic Theory (if 06E:001 was taken for foundation requirement) 3 s.h.
06E:105 Macroeconomics (if 06E:002 was taken for foundation requirement) 3 s.h.
Two of these:
06E:119 Economics of the Government Sector 3 s.h.
06E:125 International Economics 3 s.h.
06E:172/091:295 Law and Economics (cannot be used to satisfy both the economics and the law field requirements) 3 s.h.
06E:176 Public Sector Economics 3 s.h.
PHILOSOPHY

Three of these:
026:102 Introduction to Ethics (if not taken for the foundation requirement) 3 s.h.
026:104 Introduction to Philosophy of Science 3 s.h.
026:132 Introduction to Political Philosophy (if not taken for the foundation requirement) 3 s.h.
026:133 Philosophy of History 3 s.h.
026:135 Philosophy of Law (if not taken for the foundation requirement) 3 s.h.
026:180 Analytic Ethics 3 s.h.
026:182 History of Ethics I 3 s.h.
026:183 History of Ethics II 3 s.h.
026:185 Political Philosophy 3 s.h.
026:196 Philosophy of the Human Sciences 3 s.h.

POLITICAL SCIENCE

One of these:
030:116 American Constitutional Law and Politics 3 s.h.
030:118 American Political Development 3 s.h.
030:119 Problems in American Politics 3 s.h.

One of these:
030:132 Modern Political Theory 3 s.h.
030:133 Postmodern Political Theory 3 s.h.
030:138 Current Political Theory 3 s.h.

One of these:
030:126 American Public Policy 3 s.h.
030:130 Strategy in Politics 3 s.h.
030:152 The Legislative Process 3 s.h.
030:153 The Judicial Process 3 s.h.

LAW

One of these:
026:135 Philosophy of Law (if not taken for foundation or another field requirement) 3 s.h.
144:143/091:288 Jurisprudence 3 s.h.

Two of these:
06E:172/091:295 Law and Economics (if not taken for economics field requirement) 3 s.h.
16A:110/091:293 Law in American History I 3 s.h.
16E:114/091:264 Foundations of Anglo-American Law 4 s.h.
030:116 American Constitutional Law and Politics (if not taken for political science field requirement) 3 s.h.
091:195/030:173 Introduction to Public International Law 3 s.h.
091:294 Introduction to Roman Law 3 s.h.
144:142/091:224 Comparative Law 3 s.h.

Semester hours earned in PEOPLE courses taught by College of Law faculty members normally do not count toward requirements for a law degree.

SOCILOGY

One of these:
034:001 Introduction to Sociology: Principles 3 s.h.
034:009 Sociological Theory 3 s.h.

Two of these:
034:040 Criminology 3 s.h.
034:066 Social Inequality 3 s.h.
034:141 Juvenile Delinquency 3 s.h.
034:149 Sociology of Criminal Punishment 3 s.h.
034:150 Political Sociology 3 s.h.
034:182 Sociology of Law 3 s.h.

Courses

144:141 Law, Litigation, and Science arr.
144:142 Comparative Law 2-3 s.h.

Comparative study of the world's main legal systems; emphasis on origins, development, characteristic features of civil law tradition, which includes most modern legal systems. Same as 091:224.

144:143 Jurisprudence 2-3 s.h.

Selected legal philosophies, with emphasis on legal positivism and natural law; nature of jurisprudence, relationship between law and morality, authority, normativity, institutional nature of law, political obligation. Same as 091:288.

General Military Course

The general military course (GMC) consists of a 1 s.h. course and a leadership laboratory during each semester of two years. Any student who meets AFROTC qualifications and is in good academic standing with the University is eligible to participate in the GMC. Students may apply for the GMC up to the time they earn 60 s.h.

Professional Officer Course

The professional officer course (POC) consists of four 3 s.h. AFROTC courses. Students accepted into the POC make a commitment to serve a minimum of four years as U.S. Air Force officers. To enter the POC, students must be selected to attend and must successfully complete field training. Students generally take the POC during their last 60 s.h.

Field Training

All POC applicants must successfully complete field training at a U.S. Air Force base during a summer, usually between the second and third years. There are two types of field training: a four-week course for cadets who have completed all GMC requirements and a six-week course for all other applicants.

Field training consists of aircraft, aircrew, career, and survival orientation; junior officer training; physical training; small arms training; human relations education; and equal opportunity training. The six-week field training provides 60 hours of academic work that a student normally would have taken in the GMC.

Students receive authorized pay and allowances when they attend field training.

Special Activities

The Cadet Corps sponsors many social events, including informal parties, formal dinners, and a military ball. The advanced training program is a voluntary program in which selected cadets may go on active duty for two or three weeks during the summer following their third year. Cadets get hands-on experience and receive authorized pay and allowances. Selected AFROTC cadets may attend airborne training and upon completion wear the Army parachute jump wings.

Financial Aid

Scholarships are available, based on merit, for one, two, and three years of study. They provide full tuition, a stipend for books, laboratory fees, and $250-400 per month, tax-free. Applicants are selected on both objective and subjective factors. Students should apply directly to the head of aerospace studies.

All cadets in the last two years of AFROTC are eligible for some financial assistance. They receive $350-400 per month, tax-free. Uniforms are furnished as well as all books for AFROTC classes.
Education Delay

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

Courses

23A:010 Foundations of the U.S. Air Force I 1 s.h.
Introduction to U.S. Air Force: military customs and courtesies, basic oral and written communication techniques, careers available to Air Force officers. Prerequisite: first-year or sophomore standing or consent of instructor.

23A:011 AFROTC Leadership Laboratory (LLAB) AS 100-FA 1 s.h.
A progression of experiences designed to develop leadership ability; military customs and courtesies, drill and ceremonies, military professional development, the life and work of a junior officer; leadership skills in a practical, supervised military lab setting. Offered fall semesters. Prerequisite: first-year or sophomore standing or consent of instructor. Corequisite: 23A:010.

23A:012 Foundations of the U.S. Air Force II 1 s.h.
Continuation of 23A:010. Prerequisite: first-year or sophomore standing or consent of instructor.

23A:013 AFROTC Leadership Laboratory (LLAB) AS 100-SP 1 s.h.
A progression of experiences designed to develop leadership ability; military customs and courtesies, drill and ceremonies, military professional development, the life and work of a junior officer; leadership skills in a practical, supervised military lab setting. Offered spring semesters. Prerequisite: first-year or sophomore standing or consent of instructor. Corequisite: 23A:012.

23A:020 Evolution of USAF Air and Space Power I 1 s.h.

23A:021 AFROTC Leadership Laboratory (LLAB) AS 200-FA 1 s.h.

23A:022 Evolution of USAF Air and Space Power II 1 s.h.

23A:130 Air Force Leadership Studies I 3 s.h.
Emphasis on management, leadership, communication skills required of an Air Force officer. Prerequisite: junior standing or higher or consent of instructor. Corequisite: 23A:131.

23A:131 AFROTC Leadership Laboratory (LLAB) AS 300-FA 1 s.h.

23A:132 Air Force Leadership Studies II 3 s.h.
Continuation of 23A:130. Prerequisite: junior standing or higher or consent of instructor.

23A:133 AFROTC Leadership Laboratory (LLAB) AS 300-SP 1 s.h.

23A:140 National Security Affairs and Active Duty Preparation I 3 s.h.
America’s evolving national security policy. Prerequisite: junior standing or higher or consent of instructor.

23A:141 AFROTC Leadership Laboratory (LLAB) AS 400-FA 1 s.h.

23A:142 National Security Affairs and Active Duty Preparation II 3 s.h.
Continuation of 23A:140; emphasis on professional qualities required of Air Force officers. Prerequisite: junior standing or higher or consent of instructor.

23A:143 AFROTC Leadership Laboratory (LLAB) AS 400-SP 1 s.h.

23A:150 Readings in Contemporary Military Issues 1-4 s.h.
Individual research. Prerequisite: consent of department head.

23A:171 AFROTC Leadership Lab AS 700 0 s.h.
Opportunity to use leadership skills acquired in previous AFROTC classes; experience providing leadership to the Cadet Corps, under direction of commandant of cadets. Prerequisites: 23A:141 and 23A:143.

23A:173 AFROTC Leadership Lab AS 700 0 s.h.
Opportunity to use leadership skills acquired in previous AFROTC classes; experience providing leadership to the Cadet Corps, under direction of commandant of cadets. Prerequisites: 23A:141 and 23A:143.

Undergraduate Program

BASIC COURSE

The ROTC basic course is designed primarily for first- and second-year students. It provides the fundamentals of leadership and management and introduces the roles of the military as affected by national and foreign policy. Students incur no obligation to the military for participation in the basic course. The following courses satisfy the basic course requirement.

023:101 Foundations of Officership MS101 1 s.h.
023:102 Basic Leadership MS102 1 s.h.
023:103 Individual Leadership Studies MS201 2 s.h.
023:104 Leadership and Teamwork MS202 2 s.h.

The basic course requirements may be taken over a one-year or two-year period or during a five-week paid camp during the summer. Students with prior military training normally are exempt from these basic course requirements.

ADVANCED COURSE

The ROTC advanced course, though open to any student who meets the prerequisites, is designed primarily for students who wish to pursue a commission as a lieutenant in the U.S. Army upon graduation. It is open to both undergraduate and graduate students. Most students in the advanced course incur an obligation with the military that can be satisfied in the Active Army, Army Reserve, or Army National Guard.

A tax-free grant of $350-400 per month is provided to students who agree to serve in the armed forces. Additional financial assistance may be provided through participation in training with an Army Reserve or Army National Guard unit.

To enter the advanced course, students must satisfy the basic course requirements, be at least academic juniors, and have a g.p.a. of at least 2.00. A four-week paid camp, normally completed the summer before the last academic year, is required for all students wishing to become Army officers. The following courses are the academic requirements for completion of the advanced course.

023:095 Advanced Military Fitness Training (concurrent with 023:106) 1 s.h.
023:105 Leadership and Problem Solving MS301 3 s.h.
023:106 Leadership and Ethics MS302 3 s.h.
023:107 Leadership and Management MS401 3 s.h.
023:108 Officership MS402 3 s.h.

ADDITIONAL COURSE WORK

Students desiring a commission must complete one course from each of the following categories. These courses may be the same as those used to complete the College of Liberal Arts and Sciences General Education Program. Students earning a degree in nursing or engineering normally are exempt from these requirements.

Written Communications
010:002 Rhetoric II 4 s.h.
010:003 Accelerated Rhetoric (or equivalent) 4 s.h.

Military History
016:011 Issues in Human History: The Vietnam War in Historical Perspective 3 s.h.
016:014 Issues in Human History: Europe’s Expansion Overseas 3 s.h.
16A:153 U.S.A. in a World at War 1931-1945 3 s.h.
16A:162 American Revolutionary Period 1740-1789 3 s.h.
16A:164 Civil War and Reconstruction 3 s.h.
16A:166 The Progressive Era in America 3 s.h.
16A:168 The Contemporary U.S. 1940-Present 3 s.h.
16W:182 The Vietnam War in Historical Perspective 3 s.h.

Computer Literacy
06K:070 Computer Analysis 3 s.h.
22C:001 Computer Literacy 3 s.h.
22C:005 Introduction to Computer Science 3 s.h.
22C:016 Computer Science I 4 s.h.
059:005 Engineering Problem Solving 1 3 s.h.

Financial Aid

Military Science offers two-, three-, and four-year merit scholarships for students who wish to enter the ROTC program. These scholarships pay all or most of tuition at The University of Iowa, $600...
for books and supplies each year, all or most mandatory educational fees, and a tax-free subsistence allowance of $250-400 per month during the academic year. Scholarships also are available for nursing students who wish to become Army nurses.

Additional financial assistance may be provided through participation in training with an Army Reserve or Army National Guard unit.

**Courses**

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<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
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<tr>
<td>023:090</td>
<td>Leadership Laboratory</td>
<td>0 s.h.</td>
<td></td>
</tr>
<tr>
<td>023:095</td>
<td>Advanced Military Fitness Training</td>
<td>1 s.h.</td>
<td></td>
</tr>
<tr>
<td>023:101</td>
<td>Foundations of Officership MS101</td>
<td>1 s.h.</td>
<td></td>
</tr>
<tr>
<td>023:102</td>
<td>Basic Leadership MS102</td>
<td>1 s.h.</td>
<td>023:101, 023:102, 023:103, and 023:104 or consent of instructor.</td>
</tr>
<tr>
<td>023:103</td>
<td>Individual Leadership Studies MS201</td>
<td>2 s.h.</td>
<td></td>
</tr>
<tr>
<td>023:104</td>
<td>Leadership and Teamwork MS202</td>
<td>2 s.h.</td>
<td>023:103 or consent of instructor.</td>
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<tr>
<td>023:105</td>
<td>Leadership and Problem Solving MS301</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>023:106</td>
<td>Leadership and Ethics MS302</td>
<td>3 s.h.</td>
<td></td>
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<tr>
<td>023:107</td>
<td>Leadership and Management MS401</td>
<td>3 s.h.</td>
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Tippie College of Business

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Dean: Gary C. Fethke
Senior associate dean: Robert Forsythe
Associate dean, undergraduate program: Nancy R. Hauserman
Associate dean, school of management:
  Gary J. Gaeth
Degrees: B.B.A., M.Ac., M.B.A., Ph.D.
Web site: http://www.biz.uiowa.edu
The Henry B. Tippie College of Business is composed of six academic departments: accounting, economics, finance, management and organizations, management sciences, and marketing.

The undergraduate and graduate programs of the college are accredited by AACSB International—The Association to Advance Collegiate Schools of Business.

Research, executive development, and education activities are supported by the centers and institutes of the college: Hawkinson Institute of Business Finance, Institute for Economic Research, John Pappajohn Entrepreneurial Center, RSM McGladrey Institute of Accounting Education and Research, Institute for International Business, and Small Business Development Center.

**Undergraduate Program**

The Tippie College of Business offers the Bachelor of Business Administration (B.B.A.) in all six departments. Most B.B.A. students complete background studies either in the College of Liberal Arts and Sciences at The University of Iowa or at another institution and enter the Tippie College of Business as juniors. First-year students who meet the honors program’s ACT / SAT and high school class rank criteria are eligible for the early admission program. For more information on early admission, contact the college’s Undergraduate Program Office.

**Undergraduate Advising**

All business students are advised at the Undergraduate Program Office in the Tippie College of Business. Prebusiness students are advised at the University's Academic Advising Center and at the college's Undergraduate Program Office. Assignment to the Undergraduate Program Office for advising depends on a student's grade-point average, completion of certain courses, and/or the number of semester hours completed. Walk-in hours and scheduled appointments are available at both offices. For more information on advising, contact the college's Undergraduate Program Office or the UI Academic Advising Center.

**Honor Code**

Integrity and honesty are essential to success in all facets of life. The purpose of the Tippie College of Business Honor Code is to promote honorable and ethical behavior. For more information about the honor code, contact the Undergraduate Program Office.

**Bachelor of Business Administration**

The B.B.A. degree requires a minimum of 120 s.h. of credit, including at least 48 s.h. earned in business courses and at least 60 s.h. earned in nonbusiness courses.

Students must earn 30 s.h. in residence following admission to the Tippie College of Business. At least 24 s.h. in courses offered by the business college and at least two-thirds of the semester hours in the student's major must be earned at The University of Iowa. Nonresident instruction includes course work at colleges and universities other than The University of Iowa.

To graduate, B.B.A. candidates must have a cumulative g.p.a. of at least 2.00 in all college course work attempted; all college course work attempted in business, all college course work attempted in the major, all course work attempted at The University of Iowa, all business course work attempted at The University of Iowa, and all course work in the major attempted at The University of Iowa.

**Common Requirements**

B.B.A. candidates must satisfy the following minimum common requirements or approved equivalents. For approved equivalents, consult the college's Undergraduate Program Office.

**GENERAL EDUCATION REQUIREMENTS**

Students may not count courses taken to fulfill general education requirements toward other requirements for the B.B.A.

Rhetoric (010:001-010:002, or 010:003) 4-8 s.h.
Natural sciences 3 s.h.
Historical perspectives 3 s.h.
Global and cultural studies 3 s.h.
Humanities (including 08G:001 Interpretation of Literature) 6 s.h.
Social sciences (excluding 06E:001 and 06E:002) 3 s.h.

**PREREQUISITES FOR ADMISSION TO THE COLLEGE**

06A:001 Introduction to Financial Accounting 3 s.h.
06A:002 Managerial Accounting 3 s.h.
06E:001 Principles of Microeconomics 4 s.h.
06E:002 Principles of Macroeconomics 4 s.h.
22M:017 Calculus and Matrix Algebra for Business 4 s.h.
22S:008 Statistics for Business 4 s.h.

**BUSINESS CORE**

06E:071 Statistics for Strategy Problems 3 s.h.
06F:100 Introductory Financial Management 3 s.h.
06J:047 Introduction to Law 3 s.h.
06J:048 Introduction to Management 3 s.h.
06L:100 Foundations of Business 3 s.h.
06K:070 Computer Analysis 3 s.h.
06K:100 Operations Management 3 s.h.
06M:100 Introduction to Marketing Strategy 3 s.h.

In addition, students must complete a major area of study. The majors offered by the college are accounting, economics, finance, management, management information systems, and marketing. The requirements for each are established by the college's individual departments.

**Students With Associate of Arts Degrees**

Students who receive Associate of Arts (A.A.) degrees from community colleges participating in the Iowa Community College/Regents Articulation Agreement are considered to have met the rhetoric, natural sciences, social sciences, historical perspectives, and humanities requirements, but not the global and cultural studies (formerly foreign civilization and culture) requirements. The program of study for which the A.A. was awarded must have included:

- a minimum of 60 s.h. (or 90 quarter hours) of credit acceptable toward graduation from The University of Iowa (mathematics courses comparable to 22M:001 Basic Algebra I, 22M:002 Basic Algebra II, and 22M:003 Basic Geometry are not accepted toward graduation);
- completion of the agreed-upon group of courses at the community college; and
- a g.p.a. of at least 2.00.

Students who use the provisions of the articulation agreement are granted a maximum of 60 s.h. of transferable credit from two-year colleges toward the 120 s.h. required for a B.B.A. If a student has earned more than 60 s.h. of credit in completing the A.A., the excess credit is used in computing the grade-point average and may be used to satisfy course requirements, but it does not count toward the bachelor's degree. Transfer credit for business courses taken during the first and second years is counted toward the B.B.A. only if such courses are usually offered as lower-division courses at The University of Iowa.

**Transfer Courses**

Students who have taken courses at another institution that are similar to those approved for the common business requirements at Iowa may request that these courses be evaluated. Students who transfer fewer than enough hours to meet a common requirement may use only approved courses to complete the remainder of the requirement. Only junior- and senior-level courses taken at accredited four-year institutions may be used to satisfy common business course requirements numbered 100 and above. Correspondence courses cannot be used to satisfy any major requirement toward the B.B.A.

**Four-Year Graduation Plan**

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan.

Note: The following checkpoints are designed for students who enter the University as first-year prebusiness students. In order to stay on the plan, students must maintain the grade-point average required for guaranteed admission to the Tippie College of Business and must apply for admission to the college by the established deadline. Students who choose to pursue a double major (two majors in the college) are not eligible to continue on the four-year plan.

Students must take 06L:100 Foundations of Business during their first semester after admittance to the Tippie College of Business.

Before the third semester begins: 06E:001 or 06E:002, 22M:017, and 22S:008, or equivalents; and at least one-quarter of the semester hours required for graduation.
Before the fifth semester begins: 06A:001, 06A:002, and 06E:001 or 06E:002 (whichever has not already been taken), or equivalents; all general education requirements; and at least half of the semester hours required for graduation.

Before the seventh semester begins: business core requirements, approximately half of the coursework in the major (varies by major), and three-quarters of the semester hours required for graduation.

Before the eighth semester begins: approximately three-quarters of coursework in the major (varies by major).

During the eighth semester: all remaining coursework in the major, and a sufficient number of semester hours to graduate.

B.B.A. With Honors

The Tippie College of Business Honors Program provides outstanding students in the college the opportunity to undertake independent study and to work closely with faculty members and other honors students. Students choose one of three paths toward graduation with honors: complete the junior honors seminar, generally in the spring of the junior year, and complete the honors thesis, generally in fall semester of the following academic year; or complete the economic honors seminar, generally in fall of senior year, and complete the thesis, generally in the spring of the same academic year; or complete three Tippie College of Business courses designated by the student or by ISIS as honors courses (prerequisites do not count toward this requirement). Students must obtain permission from the co-directors of the college’s honors program before designating a course as honors.

Students must have a g.p.a. of at least 3.50 to enter the Tippie Honors Program. To earn the B.B.A. with honors, students must successfully complete all college and honors program requirements with a g.p.a. of at least 3.50 in all courses taken at Iowa, all business courses taken at Iowa, all courses taken (including transfer courses), and all business courses taken (including transfer courses).

Prebusiness students interested in the honors program are encouraged to participate in the University Honors Program until they are admitted to the business college.

Double Majors in Business

Students may earn a double major by meeting the requirements of more than one major in the Tippie College of Business. They receive one B.B.A. degree with two or more majors. During early registration, students pursuing a double major in the college may register only for courses in their first major. Course availability guarantees of the four-year graduation plan are not available for more than one major.

Combined Business/Liberal Arts and Sciences Degree

The College of Liberal Arts and Sciences and the Tippie College of Business offer a combined degree program in which students earn two University of Iowa baccalaureate degrees. Successful candidates are awarded a Bachelor of Business Administration (B.B.A.) by the business college and a Bachelor of Arts (B.A.), Bachelor of Science (B.S.), Bachelor of Fine Arts (B.F.A.), or Bachelor of Music (B.M.) by the liberal arts and sciences college.

To enter the combined degree program, students must be eligible for admission to the Tippie College of Business. Interested students should schedule an appointment with an adviser in the business college’s Undergraduate Program Office. Students must be approved for candidacy in the combined degree program by the business college and must be admitted to both colleges.

Students who enter the program are required to complete all general education, college, and major requirements for both colleges.

To qualify for both degrees in the combined degree program, candidates must complete an overall total of 150 s.h., including at least 30 s.h. in courses offered by the business college and at least 30 s.h. in courses offered by the liberal arts and sciences college.

Minors

Nonbusiness Minors

Undergraduate students in the Tippie College of Business may earn a minor in another college of the University. For example, students interested in international business might choose a foreign language as a minor. For the minor requirements, students should consult with an adviser in the relevant department. To have the minor recorded on their transcripts, students must complete the “minor” section on the B.B.A. degree application before submitting the form to the Registrar early in their final semester, or when they apply for the degree using the ISIS system.

Business Minor

Students majoring in another college of the University may earn a minor in business administration. The courses listed below, or their equivalents, satisfy all requirements for the minor. At least 15 s.h. of courses taken for the minor must be completed in residence at The University of Iowa, and at least 15 s.h. must be course work completed in the Tippie College of Business. An overall g.p.a. of at least 2.00 is required on all courses taken in the minor and on all courses in the minor taken at Iowa. Courses in the minor may not be taken pass/nonpass.

22M:017 Calculus and Matrix Algebra for Business (students may substitute 22M:016, 22M:021, 22M:025, or 22M:035) 4 s.h.
22S:008 Statistics for Business (students may substitute 05P:025, 05P:143, 22S:025, 22S:039, 22S:102, or 22S:120) 4 s.h.
06A:001 Introduction to Financial Accounting 3 s.h.
06A:002 Managerial Accounting 3 s.h.
06E:001 Principles of Microeconomics 3 s.h.
06E:002 Principles of Macroeconomics *06E:100 Introductory Financial Management (students may substitute 056:054 or 059:014) 3 s.h.
06J:047 Introduction to Law 3 s.h.
06J:048 Introduction to Management 3 s.h.
06K:070 Computer Analysis (students may substitute 22C:016, 22C:021, 22C:109, 059:006, 059:017, or 07W:111) 3 s.h.
*06M:100 Introduction to Marketing Strategy 3 s.h.

*Must be taken in junior or senior year

Students who will have completed all requirements for the minor in business administration when they graduate should indicate a business minor on the application for degree before submitting the form to the registrar’s office early in their final semester, or when they apply for the degree using the ISIS system.

Entrepreneurship Programs for Undergraduates

Entrepreneurship Certificate for Business Students

Web site: http://www.iowajpec.org

The Tippie College of Business and the Pappajohn Entrepreneurial Center offer University of Iowa students the opportunity to earn a Certificate in Entrepreneurship while pursuing their undergraduate degrees. The Colleges of Engineering and Liberal Arts and Sciences and the UI health science colleges also collaborate in the certificate program.

The entrepreneurship program was named the 2004 National Model Undergraduate Entrepreneurship Program by the United States College of Engineering and Liberal Arts and Sciences and the UI health science colleges also collaborate in the certificate program.

The entrepreneurship program was named the 2004 National Model Undergraduate Entrepreneurship Program by the United States College of Engineering and Liberal Arts and Sciences and the UI health science colleges also collaborate in the certificate program.

Students learn from a select team of faculty members and business leaders distinguished by their ability to teach, model, and inspire the entrepreneurial process. The Certificate in Entrepreneurship is noted on the student’s permanent record when the undergraduate degree is added to the transcript.

The certificate program helps prepare students to start and lead their own companies and expands their understanding of how entrepreneurial firms operate. It encourages innovation and creativity and develops skill in recognizing opportunity—all necessary for entrepreneurs and successful business leaders.

Students in the entrepreneurship program gain understanding of the entrepreneurial approach to acquiring and managing resources. They acquire team-building skills critical to both small and large companies, and they develop sound business planning skills necessary for launching new ventures and products. Certificate students also enjoy networking opportunities with successful entrepreneurs and other business leaders.

Undergraduate students in the Tippie College of Business, the College of Liberal Arts and Sciences, and the UI health sciences colleges must declare their intention to pursue the certificate. Forms are available from the
Entrepreneurship Certificate for Engineering Students

Students enrolled in the College of Engineering should consult with the college's Student Development Center for information about requirements for the Certificate in Technological Entrepreneurship.

Major in Performing Arts Entrepreneurship

The Division of Performing Arts (College of Liberal Arts and Sciences) and the Pappajohn Entrepreneurial Center offer a joint undergraduate major in Performing Arts Entrepreneurship, leading to a B.A. degree. Contact the Division of Performing Arts for more information.

Courses

For a complete listing of entrepreneurship courses offered by the Tippie College of Business, see “Entrepreneurship Courses” later in this section of the Catalog.

International Business Certificate

Coordinators: Patricia Mason-Browne (Liberal Arts and Sciences), Kimberly Williams (Business)

Undergraduate nondegree program: certificate in International Business

Web site: http://www.biz.uiowa.edu/upo/ibc/

The Henry B. Tippie College of Business and the College of Liberal Arts and Sciences offer a certificate in international business. The certificate program includes study of international business and economics, international relations and institutions, a foreign language, and the contemporary art, literature, culture, and/or politics of the related geographical area.

The certificate program is designed not only for undergraduate students who intend to pursue careers in international business but for any undergraduate interested in gaining a better understanding of the global economy and a broader awareness of the political, historical, and social environment in which international business operates. The range of courses in the program permits students to tailor areas of specialization suited to their individual interests and to complement majors in both liberal arts and sciences and business.

When students complete the certificate requirements and graduate, the notation “Certificate in International Business” is added to their transcript. Questions should be directed to the Tippie College of Business Undergraduate Program Office or the CLAS Academic Programs & Services office.

Application

Undergraduate students pursuing a degree from the University of Iowa are eligible to work toward the certificate in international business. Students who already have earned a baccalaureate degree from The University of Iowa may return to complete or earn a certificate.

Requirements

The certificate requires 29 s.h. of course work plus satisfaction of the foreign language requirement (required credit varies according to language studied). Students must maintain a g.p.a. of at least 2.00 on all international business certificate course work. Courses used to satisfy the certificate may not be taken pass/nonpass. A course may not be used to satisfy more than one certificate requirement.

A minimum of 20 s.h. of certificate course work (other than language courses) must be completed at The University of Iowa or in approved study abroad programs. Students who want to use credit earned while studying abroad should consult an international business certificate adviser before leaving campus. Guided Independent Study (correspondence study) is accepted toward the certificate.

The certificate requires course work in international business, international relations and institutions, foreign language, and area studies, as follows.

INTERNATIONAL BUSINESS

These courses provide students with an essential understanding of economics, which is central to all business operation. They also help students develop knowledge of the functional areas of international business.

Both of these:

06E:001 Principles of Microeconomics 3-4 s.h.
06E:002 Principles of Macroeconomics 3-4 s.h.

Three of these (total of 9 s.h.):

06E:125 International Economics 3 s.h.
06E:129 Economic Growth and Development 3 s.h.
06E:164 Economies in Transition 3 s.h.
06E:173 Advanced International Economics 3 s.h.
06F:130 International Finance 3 s.h.
06J:146 International Business Environment 3 s.h.
06M:151 International Marketing 3 s.h.
091:282 International Business Transactions 3 s.h.
091:287 International Trade Law: Basic Norms and Regulation 3 s.h.

INTERNATIONAL RELATIONS AND INSTITUTIONS

These courses familiarize students with comparative politics, social geography, foreign policy, and issues related to world population and the environment—topics relevant to decision making in the international business world.

Two of these (total of 6 s.h.):

16A:152 United States in World Affairs 3 s.h.
16W:138/152:138 History of International Health 3 s.h.
019:156 Comparative Communication Systems 3 s.h.
030:040 Introduction to the Politics of Industrial Democracies 3 s.h.
030:041 Introduction to the Politics of Russia and Eurasia 3 s.h.
030:042 Introduction to the Politics of Developing Areas 3 s.h.
030:060 Introduction to International Relations 3 s.h.
030:061 Introduction to American Foreign Policy 3 s.h.
only gain insight into the culture of another region of the world, they also develop a deeper understanding of their own language and culture. Students must complete an approved foreign language sequence. For questions about languages not listed below or about study abroad course work, see an international business certificate adviser.

**Chinese**
One of these sequences:
039:008-039:009 First-Year Chinese: First and Second Semesters 10 s.h.
039:100-039:101 Advanced First-Year Chinese: First and Second Semesters 10 s.h.
039:010-039:011 Second-Year Chinese: First and Second Semesters 10 s.h.

**French**
One of these sequences:
009:001-009:012 First-Year French I-II 8 s.h.
009:010 First-Year French Review 5 s.h.
All of these:
009:011-009:012 Intermediate French I-II 8 s.h.
A course for which 009:012 is prerequisite (may include credit from the Iowa Regents Program)

**German**
One of these:
013:011-013:012 First-Year German I-II 8 s.h.
013:013 Intensive First-Year German 6 s.h.
013:014 First-Year German Review 5 s.h.
All of these:
013:021-013:022 Intermediate German I-II (both courses) 8 s.h.
013:025 Intensive Intermediate German I-II (both courses) 8 s.h.
A course for which 013:022 or 013:025 is prerequisite

**Hindi**
Both of these sequences:
039:031-039:032 First-Year Hindi: First and Second Semesters 10 s.h.
039:033-039:034 Second-Year Hindi: First and Second Semesters 8 s.h.

**Italian**
One of these:
018:001-018:002 First-Year Italian I-II (both courses) 8 s.h.
018:103 Intensive First-Year Italian 6 s.h.
All of these:
018:011-018:012 Intermediate Italian I-II 8 s.h.
A course for which 018:012 is prerequisite

**Japanese**
One of these sequences:

**Portuguese**
One of these:
038:100 Accelerated Elementary Portuguese 8 s.h.
038:102 Portuguese for Spanish Speakers 3 s.h.
Both of these:
038:101 Accelerated Intermediate Portuguese 0-5 s.h.
A course for which 038:101 is prerequisite

**Russian**
All of these:
041:001-041:002 First-Year Russian I-II 8 s.h.
041:003-041:004 Second-Year Russian I-II 8 s.h.
A course for which 041:004 is prerequisite

**Swahili**
Both of these sequences:
103:017-103:018/129:017-129:018 Intermediate Swahili I-II 8 s.h.

**Zulu**
Both of these sequences:

**Area Studies**
These courses help students learn about the culture, contemporary history, art, literature, and politics of the geographic region in which their second language is spoken. They cover topics critical to understanding sociocultural influences on individuals with whom students share the world, and with whom they may conduct business.

Students complete 6 s.h. from one geographic area. The area should be appropriate to the language the student chooses for the language requirement.

**Asia**
Appropriate for these languages: Chinese, Hindi, or Japanese
01H:016/039:016 Asian Art and Culture 3 s.h.
01H:055/039:055 Civilizations of Asia: China 3 s.h.
016:006/039:056 Civilizations of Asia: Japan 3 s.h.
16W:194/039:134 Imperialism and Modern India 3 s.h.
16W:196/039:154 Modern China 1600s to 1920s 3 s.h.
Undergraduate Academic Rules and Procedures

Recognition for Academic Achievement

Dean’s List
Undergraduate students in the Tippie College of Business who achieve a g.p.a. of 3.50 or higher on 12 s.h. or more of graded work during a given semester and who have no hours of I (incomplete) or O (no grade reported) during the same semester are recognized by inclusion on the Dean’s List for that semester.

President’s List
University of Iowa undergraduate students who achieve a g.p.a. of 4.00 on 12 s.h. or more of graded work and who have no hours of I (incomplete) or O (no grade reported) for two consecutive semesters (excluding summer sessions) are recognized by inclusion on the President’s List.

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

To be eligible for either form of recognition, a student must complete 60 s.h. in residence as an undergraduate at The University of Iowa, including 45 s.h. completed before the final registration.

Graduation With Distinction
The Office of the Registrar certifies to the dean of the college the names of students eligible to graduate with distinction. The college awards degrees “with highest distinction” to students in the highest 2 percent of the graduating class, “with high distinction” to students in the next highest 3 percent, and “with distinction” to the next highest 5 percent. Ranking is based on students' grade-point averages for all college-level study undertaken before their final registration.

Admission
Admission standards are set by the undergraduate program committee. The college usually admits undergraduate students at the beginning of their junior year. Students are eligible for admission to the college after they have completed 60 s.h., have satisfied prerequisite requirements, and have submitted all application materials by the deadline (April 1 for summer or fall admission, November 1 for spring admission). Late applications are not accepted.

Students who apply for fall admission must state whether they intend to enroll in summer course work that should be included in their admission review. Students who apply for summer admission may not request a review for fall after the last day of spring semester classes. Students transferring to the college from another university or college are not held to the admission deadlines; they may apply at any time.

All applications must be submitted online at http://www.biz.uiowa.edu/upo/admissions/admissions.html.

Admission to the Tippie College of Business is guaranteed to students who have earned junior standing, who meet the previously stated course requirements, and who have earned a g.p.a. of at least 2.75 on the six prerequisite courses, on all college course work, and on all course work at Iowa. In addition, students admitted to The University of Iowa fall 1998 or later must have earned no grade lower than C on any prerequisite course. Admission to the major in accounting is guaranteed only to applicants who have a University of Iowa and cumulative g.p.a. of at least 3.00, a g.p.a. of at least 2.75 and no grade below C on all prerequisites, and a B-average in 06A:001 and 06A:002.

As part of the application, all students are required to complete supplemental information questions and submit a résumé. The supplemental information responses serve as writing samples and give students an opportunity to specify conditions (e.g., illness) or obligations (e.g., an ill family member) or address any instances of academic dishonesty. Letters of recommendation are not accepted.

Students who meet the grade-point average requirement may be denied admission upon evidence of postsecondary academic misconduct or other violations of the Tippie College of Business Honor Code. All incidents of academic misconduct must be detailed in the supplemental information area on the application. Admission is not guaranteed for students who have a g.p.a. below 2.75 for one or more of the categories (the six prerequisites, all college course work, and all course work at Iowa). Students still may apply to the college and their applications may be considered by the admissions committee.

In addition to grade-point averages in selected categories, a student’s pattern of grades over time and other academic factors relevant to predicting success in the business college also may be considered for admission purposes. The committee focuses on recent semesters to determine whether a student’s record reflects an upward trend in challenging and relevant course work. For more information about application and admission, contact the Undergraduate Program Office.

Nondegree Admission
Students visiting from another institution who wish to enroll in undergraduate courses to earn credit that can be transferred to their home institution may be granted permission to enroll as undergraduate nondegree students. Nondegree students are not guaranteed access to specific courses; they must have the approval of the undergraduate program director in the Tippie College of Business and may earn no more than 9 s.h. under the nondegree status.

Early Admission
Highly qualified first-year students may be admitted directly to the Tippie College of Business through the Early Admission Program. High school students who have no high school unit deficiencies and meet one of the following criteria are invited to apply:

- an ACT composite score of at least 29 (or SAT of at least 1250) and a rank in the top 10 percent of their high school class;
- an ACT composite score of 30-32 (or SAT I of at least 1290-1420) and a rank in the top 15 percent of their high school class;
- an ACT composite score of at least 33 (or SAT I of at least 1430) and a rank in the top 20 percent of their high school class.

For more information about the early admission program, contact the Undergraduate Program Office.

Reentry
Students who have been absent from the University for 12 months or more and who left in good standing must apply to the University’s Office of Admissions for reentry. Good standing is defined as not on probation or dismissed for any reason.

Students who have been absent for less than 12 months are not required to apply for reentry. They should contact the Tippie College of Business Undergraduate Program Office for advising before they register.

Students who have been enrolled in another college or university since leaving The University of Iowa are required to submit official transcripts along with their application for reentry. Completed application materials must be received at least two weeks before classes open.

Students who have been dismissed from the Tippie College of Business due to unsatisfactory scholarship, academic misconduct either at The University of Iowa or at another institution, or a violation of the Tippie College of Business Honor Code must file a petition with the Tippie College of Business requesting reinstatement.

041:102/048:107 Russian Literature in Translation 1860-1917 3 s.h.
041:1103 Russian Literature since 1917 3 s.h.
041:1104/152:170/174:170 Health Care and Health Care Reforms in Russia 3 s.h.
041:128 Topics in Russian Music and Culture 3 s.h.
041:155/008:150 Tolstoy and Dostojevsky 3-4 s.h.
041:160 Women in Russian Society 3 s.h.
041:164/048:164 Topics in Russian/East European/Eurasian Studies 3 s.h.
041:168/048:154 20th-Century Czech Authors 3 s.h.
041:187 Topics in Russian Language and Civilization I 3 s.h.
041:188 Topics in Russian Language and Civilization II 3 s.h.
187:099 Introduction to Russia, the Soviet Union, and Successor States 3 s.h.
Credit and Grading

Credit by Examination

Students may earn up to 32 s.h. of credit by examination. Selected tests from the College-Level Equivalent Program (CLEP) and the Advanced Placement Program (AP) of the College Entrance Examination Board are used. Information on the CLEP and AP examinations is available from the University's Evaluation and Examination Service. The Tippie College of Business Undergraduate Program Office has information on scores, credit, and course duplicates for all APP and CLEP tests accepted by the college.

Maximum Schedule

During early registration, students admitted to the Tippie College of Business may register for a maximum of 16 s.h. Course schedules that exceed 16 s.h. require approval from the Undergraduate Program Office. After early registration, students may register for a maximum of 18 s.h. Course schedules of more than 18 s.h. for a fall or spring semester, 9 s.h. for the 6-8 week summer session, or 3 s.h. for the 3-week session require approval from the Undergraduate Program Office.

During early registration, students pursuing a double major (two majors in the college) may register only for courses in their first major.

Adding and Dropping Courses

Courses may be added during the first three weeks of a fall or spring semester or the first one and one-half weeks of the summer session with approval of the instructor. Courses may be dropped during the first 10 weeks of a fall or spring semester, the first six weeks of the eight-week summer session, and the first four weeks of the six-week summer session with approval of the instructor. Students must file a petition with the college's Undergraduate Program Office in order to request permission to add or drop a course after these deadlines.

Courses that do not meet for a full semester follow the deadlines for adding and dropping off-cycle courses posted by the Office of the Registrar.

Undergraduates receive the mark of W for any course dropped after the third week of the semester. Summer session deadline dates for the mark of W are listed on ISIS.

Administrative Drops for Lack of Prerequisite(s)

Instructors or departments have the option to drop a student from a course if the student has not satisfied the required prerequisites correctly printed on ISIS. These administrative drops must take place during the first eight calendar days of the semester; the first two calendar days of the winter session, the three-week summer session, or any nonsession course; or the first four days of the six- or eight-week summer session.

Administrative drops are made without assignment of a W (withdrawn). Students should not assume that they have been dropped from a course because they do not have the prerequisites.

Administrative Drops for Nonattendance

Instructors have the option to drop a student who has missed the first two class periods of a course, unless the student has offered acceptable reasons for beginning the course late. Administrative drops must be processed by the second day after the second time the student fails to attend the class. These administrative drops are made without assignment of a W (withdrawn). Students should not assume that they have been dropped from a course because they have not attended it.

Pass/Nonpass

Of the total semester hours required for a B.B.A., up to 16 s.h. may be taken pass/nonpass with the consent of an adviser and the instructor. However, students may not count more than 8 s.h. of pass/nonpass credit in the last 60 s.h. of course work. Students must be in good academic standing to be eligible for the pass/nonpass option. A maximum of two pass/nonpass courses may be taken in one semester.

Courses taken pass/nonpass may not be used to satisfy general education, core, or major business requirements. (Major business requirements include any course that could serve to fulfill a major course requirement.) Pass/nonpass registration must be completed during the first three weeks of a fall or spring semester or the first one and one-half weeks of a summer session, and it requires the approval of the adviser and the instructor. For courses taken pass/nonpass, an earned grade of C- or higher is recorded as a P; an earned grade of D+ or lower is recorded as an N.

Satisfactory/Fail

Of the total semester hours required for the B.B.A., up to 16 may be taken satisfactory/fail. Grades of F are calculated in the grade-point average.

Second-Grade-Only Option

This option is not available to junior and senior students in the Tippie College of Business. Students admitted to the early admission program are eligible to apply for the second-grade-only option before they reach junior standing. Early admission program students who wish to apply for the option must follow the second-grade-only rule established by the College of Liberal Arts and Sciences.

Correspondence Courses

University of Iowa Guided Independent Study (GIS) course work is counted as resident credit and may be applied to all requirements for graduation except the major course work required for the B.B.A. Guided Independent Study courses can be taken any semester, up to four courses at a time.

Prebusiness students who have performed poorly in an on-campus course that also is offered through Guided Independent Study may retake the course through Guided Independent Study for the second-grade-only option. Likewise, prebusiness students who have performed poorly in a Guided Independent Study course may retake the course on campus for the second-grade-only option.

Guided Independent Study course work is included in financial aid calculations for University scholarships.

Probation and Dismissal

Students are placed on academic probation when their grade-point average in any of the following categories falls below 2.00: all course work undertaken, all course work undertaken at The University of Iowa, all business course work undertaken, all business course work undertaken at The University of Iowa, all course work taken to satisfy requirements for the major, and all course work taken at The University of Iowa to satisfy requirements for the major. In probation decisions, a 6 s.h. minimum is used to calculate the grade-point average for all course work taken to satisfy requirements for the major, and all course work taken at The University of Iowa to satisfy requirements for the major.

When all of the above grade-point averages equal or surpass 2.00, students are removed from probation. Students usually are allowed only one session to return to good academic standing. They are required to attend a course designed specifically for students who have been placed on academic probation. Students on academic probation who withdraw registration after the deadline for dropping courses may be dismissed.

Students may be dismissed from the college at any time for unsatisfactory scholarship. While some probationary period usually precedes a dismissal, students in good academic standing who complete a term with extremely unsatisfactory grades may be placed on academic probation or dismissed immediately. Students dropped from the college for poor scholarship may petition for permission to reregister, but usually only after the expiration of one calendar year following the end of the term in which the dismissal took place.

Reinstatement

Students dismissed for unsatisfactory scholarship for the first time ordinarily are not permitted to register again for one year. Students dismissed for the second time may or may not be granted a second reinstatement. Requests for reinstatement must be made in writing and should be addressed to Associate Dean, Undergraduate Program Office, Tippie College of Business. Arrangements for a reinstatement interview must be made with the Undergraduate Program Office.

The interview must take place between March 1 and July 1 for reinstatement for fall semester, or between October 1 and December 1 for reinstatement for spring semester. Late requests are deferred to the following semester.

Students who are permitted to register following dismissal are registered on academic probation and ordinarily are allowed two semesters to achieve good standing. Very poor academic work in the first semester of a reinstatement may result in dismissal at the close of that semester.
Returning for Baccalaureate Degrees

Returning for a Second Business Major

Persons who have already earned a B.B.A. degree at The University of Iowa and who are not enrolled in a graduate or professional program may complete the requirements for another business major except accounting (see "Reentry" in this section of the Catalog). Those interested in pursuing a degree in accounting must apply for admission to the Graduate College to earn the Master of Accountancy degree (see "Accounting" in this section of the Catalog).

Students who return to The University of Iowa to complete another business major must meet the requirements for that major; they need not meet the residence requirement. It is their responsibility to notify the Office of the Registrar upon completion of the requirements for the second major so that a notation can be placed on their permanent record.

Students who hold a B.B.A. degree from another college or university may not complete a second business major at The University of Iowa. They may apply for admission to complete an additional degree (see "Returning for an Additional Bachelor's Degree").

Returning for an Additional Bachelor's Degree

Persons who hold a bachelor's degree from another college at The University of Iowa and who are not enrolled in a graduate or professional program may return for an additional bachelor's degree from the Tippie College of Business. They must satisfy all requirements for undergraduate admission to the business college. Once admitted, they must satisfy all requirements for the B.B.A. in their chosen major.

Students interested in pursuing an additional bachelor's degree in accounting should refer to "Accounting as a Second Degree" in this section of the Catalog.

Students With Baccalaureates From Other Institutions

Students with a bachelor's degree from another college or university may apply for admission to The University of Iowa to earn an additional undergraduate degree from the Tippie College of Business. The requirements are the same as those listed under "Returning for an Additional Bachelor's Degree."

Students interested in pursuing an additional bachelor's degree in accounting should refer to "Accounting as a Second Degree" in this section of the Catalog.

Accounting as a Second Degree

Students who hold a bachelor's degree in a nonbusiness area, either from The University of Iowa or from another college or university, may in some cases be considered for admission to the Tippie College of Business to pursue a second undergraduate major in accounting. Students interested in earning a second degree with a major in accounting should consult with the department to discuss the B.B.A. or Master of Accountancy (M.Ac.). For more information see "Accounting" in this section of the Catalog.

Students may not earn a second major in accounting if they already hold a B.B.A. from The University of Iowa or any other university, may not complete a second major in accounting if they already hold a B.B.A. from The University of Iowa or any other college or university.

Graduate Programs

Interdepartmental Graduate Programs

The Tippie College of Business offers two interdepartmental graduate programs: Master of Business Administration (M.B.A.) and Doctor of Philosophy (Ph.D.) in business administration. M.B.A. candidates may pursue a second graduate degree in another college.

The Master of Arts in business administration is a nonthesis degree awarded only to students who begin the Ph.D. program and decide not to continue. Incoming students may not elect to pursue the M.A.

Doctor of Philosophy

The Ph.D. program in business administration is designed for students preparing for research positions in business and government or for research and teaching positions at academic institutions. The program is flexible, permitting students to choose an area of specialization according to their interests. Course work and related experience enable students to achieve competence in economic theory, statistical methods, and behavioral science as well as expertise in a major and minor area of study. Students also have opportunities to develop research and teaching skills.

The degree requires a minimum of 72 s.h., including accepted transfer credit. Ph.D. course work consists of prerequisites (as necessary), the Ph.D. core, major and minor areas of study, and dissertation research. Program information is available from the individual departments.

Core Courses

Core courses develop research competence and provide background for specialized study. Graduate course requirements include behavioral sciences (3 s.h.), economics (6 s.h.), and research methods/statistics/quantitative analysis (12 s.h.).

Doctoral candidates consult with their advisers to develop a plan of study that reflects the background and interests of individual students and satisfies core requirements.

Major Area of Study

At least 12 s.h. of approved doctoral-level courses must be completed in one of the following areas: accounting, finance, human resource management, management information systems, marketing, operations management, organizational behavior, or quantitative methods.

Minor Area of Study

Students must complete a minimum of 9 s.h. of doctoral-level courses beyond the Ph.D. core course requirements. Available areas include all major areas of study listed in addition to concentrations outside the Tippie College of Business.

Comprehensive Examinations

Students must satisfactorily complete a comprehensive examination, consisting of written or oral parts or both, at the discretion of the major department.

Dissertation

A dissertation proposal must be presented at a forum attended by dissertation committee members and open to interested faculty and graduate students, as established by the major department. Students are required to complete 15 s.h. of dissertation credit. Researching and writing the dissertation typically requires two years of full-time effort.

Final Examination

The dissertation must be defended in an oral examination attended by the dissertation committee members. The examination also is open to other interested faculty members and graduate students.

ADMISSION

Applicants to the Ph.D. program must submit a completed application for graduate admission, official transcripts from all institutions attended, official test scores, and three letters of recommendation to the sponsoring department. Applications must be complete, including official test scores, before an admission decision can be made.

Applicants should take the General Test (aptitude) of the Graduate Record Examination (GRE) or the Graduate Management Admission Test (GMAT) prior to consideration for admission. The tests are given at test centers established under the direction of Educational Testing Service, Princeton, New Jersey.

The Departments of Finance, Management and Organizations, Management Sciences, and Marketing accept test scores for either the GRE or GMAT. The Department of Accounting accepts only GMAT scores and the Department of Economics accepts only GRE scores. The acceptable level of performance on these tests and their weight in the admission decision is left to the discretion of each major department.

Applicants whose native language is not English must take the Test of English as a Foreign Language (TOEFL) and arrange to have their scores submitted to the University.

Application Deadlines

Applications are accepted for fall admission only and should be submitted as early as possible but no later than the deadlines established by each department, as follows.

Accounting: April 15
Economics: February 15
Finance: January 31
Management and Organizations: March 1
Management Sciences: March 1
Marketing: January 15
Other Graduate Programs

The college offers the Master of Accountancy (M.A.C.) degree and a Ph.D. in economics. See “Accounting” and “Economics” in this section of the Catalog.

Facilities

The Henry B. Tippie College of Business is located in the John Pappajohn Business Building, at the heart of the campus. The Pappajohn Business Building contains seminar and conference rooms, a computer laboratory, two auditoriums, three computer classrooms, a behavioral laboratory, a restaurant (Pat’s Diner), the Marvin A. Pomerantz Business Library, and a variety of classroom facilities.

Extensive research materials for business and economics are maintained in the Main Library, and the facilities of the Weeg Computing Center are available to all students. The computer laboratory in the John Pappajohn Business Building serves the instructional programs of the college, and the staff maintains a current library of computational programs, CD-ROMs, and data tapes to accommodate users’ needs.

Centers and Institutes

Hawkinson Institute of Business Finance

The Hawkinson Institute of Business Finance offers specialized education and training related to the investment banking and the financial services industries for undergraduate students in the Tippie College of Business. It supports the Hawkinson Scholarship Program, which recognizes academic excellence and leadership and seeks to guide Hawkinson Scholars toward competitive and rewarding internships and careers. The Institute also presents instructional seminars and participates in outreach efforts to industry.

Institute for Economic Research

The Institute for Economic Research engages in and supports economic research and establishes a formal mechanism for providing interaction with and economic advice to industry and government. The institute’s main objectives are to provide economic information, forecasts, and advice to business and public agencies; to provide a state focal point for applied economic research; and to promote and enhance academic research and teaching in economics.

Institute for International Business

The Institute for International Business is dedicated to the development and advancement of knowledge related to international business. The Institute coordinates and augments resources at the Henry B. Tippie College of Business to provide students at all levels with the education, experience, and skills they will need for success in the global marketplace. The institute seeks to strengthen links between academic research and Iowa corporations engaged in international activities. It also sponsors cultural events and seminars in the college.

RSM McGladrey Institute

The RSM McGladrey Institute of Accounting Education and Research fosters educational excellence in the accounting programs at The University of Iowa and encourages high-quality research by Iowa accounting faculty members. The institute sponsors varied educational initiatives and activities, including an annual national speaker series. It helps faculty members initiate research projects and disseminate the findings to the academic, business, government, and professional accounting communities.

John Pappajohn Entrepreneurial Center

The John Pappajohn Entrepreneurial Center offers innovative education and outreach programs for entrepreneurs of all ages. The entrepreneurial program was one of the first in the country to integrate entrepreneurship education with business, engineering, health sciences, and the liberal arts, offering an undergraduate certificate in entrepreneurship. Advanced entrepreneurial courses are available to all graduate and professional students across the campus, and M.B.A. students can pursue an entrepreneurship concentration.

The center shares its expertise with public school students and teachers, and it hosts seminars, speakers, and conferences for businesses and individuals. The center also partners with the state’s community colleges to offer entrepreneurial training programs for Iowans who want to learn about business ownership.

Small Business Development Center

Since 1981, The University of Iowa Small Business Development Center has played an important role in helping entreprenuing Iowans manage or start their own businesses successfully. The center provides support for small business owners and entrepreneurs. Its personnel are trained to meet the various needs of small business management, including market, business, and financial planning, cash flow analysis, human resource planning, product commercialization, market research and analysis, strategic planning, international trade, and advertising and public relations.

Business Communications Center

The Business Communications Center is a comprehensive communication program that provides professional written and oral communications training for undergraduate students, graduate and peer staff tutors, and faculty members of the Tippie College of Business. The center offers its services through four initiatives.

The Business Communications Center is a tutoring service that helps hundreds of undergraduates every semester, assessing and working on individual needs.

The Writing Intensive Course Program draws on the Business Communications Center for help in courses that require writing projects. The center’s staff works closely with faculty members to study assignments, develop handouts, give targeted presentations, and tutor students individually.

The Team and Collaborative Writing Initiative focuses on team assignments, which are a critical part of the college’s curriculum. The initiative trains students to become final project editors and to share documents with team members throughout the writing process.

The Business Communications Center offers courses in successful presentations and provides individual consultations for students who wish to enhance their oral communication skills.

Career Center

Career development and on-campus recruiting services for undergraduate students are provided by the University of Iowa Career Center. The center offers workshops throughout the year on a variety of topics, including résumé and cover letter writing, employer research, interviewing skills, and negotiating job offers. It also presents a fall semester career fair and a summer job and internship fair in the spring semester. The Career Center’s staff assists students looking for internships and full-time employment. Employer recruiting is facilitated through web-based software. Contact the Career Center for more information.

Alumni Relations

Relationships with alumni are maintained by staff in the Undergraduate Program Office and the Tippie School of Management Office and by the college’s director of communication and external relations. The college circulates its magazine, Bill (Business at Iowa), to alumni and friends of the college and hosts alumni events each semester ranging from individual visits to receptions in cities nationwide and worldwide. Members of the Business Student Ambassadors, an undergraduate student organization, serve as hosts and guides for alumni who visit the college.

Courses

Interdepartmental Undergraduate Courses

06B:005 Student Incentive Program 0 s.h.
Two-week on-campus learning experience for students who have been admitted to but have not begun their studies at the University. Prerequisite: admission to Student Incentive Program.

06B:010 Early Admission Program Seminar 2 s.h.
Business majors, research opportunities, and preprofessional academic enrichment activities. Prerequisite: enrollment in Early Admission Program.

06B:020 Career Management Topics 1 s.h.
Topics related to career exploration and career management.
06T:133 Entrepreneurship Marketing 3 s.h.
Practical marketing concepts for determining market potential of a business; developing a marketing plan, identifying markets, creating products, designing promotions and sales programs, assessing ongoing customer service needs. Prerequisites: 06T:120, 06T:133 or 06T:134.

06T:142 Innovation and Change 3 s.h.
Environment necessary for innovation; innovation applied to products, services, processes; strategies for regaining competitive advantage; management of stress created by innovation and change. Prerequisites: 06T:120, and 06T:133 or 06T:134.

06T:145 Legal Aspects of Entrepreneurship 3 s.h.
Areas of law significant to new and emerging businesses; legal system pitfalls, constraints, opportunities; overview. Prerequisites: 06T:120, and 06T:133 or 06T:134.

06T:146 Strategic Management of Technology and Innovation 3 s.h.
Role of technology in creation, growth, and survival of industries; process, risks, and rewards of technological innovation, commercialization; successful approaches to developing technological strategy and products. Prerequisites: 06T:120, and 06T:133 or 06T:134.

06T:150 Managing the Growth Business 3 s.h.
Issues faced by new, rapidly growing businesses; adapting organizational structure as business expands, building a management team, hiring new employees, managing strategic growth of a business; case studies, particularly in technology sector. Prerequisites: 06T:120, 06T:133, and 06T:134.

06T:190 Seminar in Entrepreneurship 2-3 s.h.
Topics such as franchising, business acquisition, real estate development, e-commerce, technology transfer. Repeatable.

06T:233 Capital Acquisition and Cash Flow Management 3 s.h.
Understanding the process of capital acquisition and cash flow management; techniques, projections, and measurements used in valuing and funding new and growing ventures; sources and strategies for raising capital. Prerequisites: 06T:120.

06T:242 Innovation and Change 3 s.h.
Environment necessary for innovation; innovation applied to products, services, processes; strategies for regaining competitive advantage; management of stress created by innovation and change. Prerequisites: 06T:120, and 06T:133 or 06T:134.

06T:246 Strategic Management of Technology and Innovation 3 s.h.
Role of technology in creation, growth, and survival of industries; process, risks, and rewards of technological innovation, commercialization; successful approaches to developing technological strategy and products. Prerequisites: 06T:120, and 06T:133 or 06T:134.

06T:250 Managing the Growth Business 3 s.h.
Issues faced by new, rapidly growing businesses; adapting organizational structure as business expands, building a management team, hiring new employees, managing strategic growth of a business; case studies, particularly in technology sector. Prerequisites: 06T:120, 06T:133, and 06T:134.

06T:290 Seminar in Entrepreneurship 1-3 s.h.
Topics such as franchising, business acquisition, real estate development, e-commerce, technology transfer. Repeatable.

06T:292 Entrepreneurship: Business Consulting 3 s.h.
Experience on teams providing consulting services to start-up and early-stage companies; the consulting process—proposals development, data collection and analysis, final report preparation and presentation; projects—marketing studies, financial projections, strategic planning.

06T:294 Entrepreneurship: Advanced Business Planning 3 s.h.
Mentoring for individuals in final stages of preparing to launch their own business.

ACCOUNTING

Chair: Morton P. Fincus
Director, Professional Program in Accounting: Lynn M. Pringle
Director, RSM McGladrey Institute of Accounting Education and Research: W. Bruce Johnson
Director, Master of Accountancy program: Lynn M. Pringle

Professors: Ranji Balakrishnan (Ernst and Young Research Professor), Daniel W. Collins (Henry B. Tippie Chair in Accounting), Douglas V. De Jong (John F. Murray Professor), W. Bruce Johnson (Arthur Andersen Professor of Accounting), Mark C. Penno, Morton E. Fincus (Carlson-KPMG Research Professor), Albert A. Schepanski

Associate professors: Sonja Olhoft Rego
Assistant professors: Crint A. Gleason, Halden L., Sonja Olhoft Rego
The Department of Accounting offers a broad education that prepares undergraduate and graduate students for careers in public accounting, private industry, government, nonprofit organizations, and academia.

**Professional Program**

The Professional Program in Accounting at The University of Iowa leads to a B.B.A. in accounting (after completion of the undergraduate degree requirements—120 s.h.) and a Master of Accountancy (M.Ac.) degree (after completion of 30 s.h. of graduate course work). Under the accountancy law that became effective in Iowa in January 2001, students who wish to become certified public accountants (CPAs) must complete a minimum of 150 s.h. of course work. Program descriptions are provided here for students who wish to complete the B.B.A. degree, the M.Ac. degree, or both degrees.

The program draws on curricula that provide a strong base of traditional technical subject matter and the skills needed for solving complex business problems. This framework of study enables students to continue professional growth over the entire span of their careers. The professional program provides the academic background required for leadership positions in business, government, and public accounting. It also qualifies students to sit for the Certified Public Accountant (CPA) and Certified Management Accountant (CMA) examinations.

Completion of prebusiness course work and acceptance to the Harry B. Tippie College of Business are required before entry into the Professional Program in Accounting at the beginning of the junior year. Students who have been admitted to the Tippie College of Business and wish to declare accounting as a major are admitted automatically if they have a University of Iowa g.p.a. and a cumulative g.p.a. of at least 3.00 and a B- average in 06A:001 Introduction to Financial Accounting and 06A:002 Managerial Accounting. Those who wish to declare accounting as a major but do not satisfy the automatic admission criteria are allowed to enroll as pre-accounting majors in the first two accounting program courses, 06A:131 Income Measurement and Asset Valuation and 06A:133 Introduction to Taxation. If they earn at least a B- average in these two courses, they are admitted to the Professional Program in Accounting. If this condition is not satisfied, students must choose another major.

Courses taken during the junior and senior years provide concentrated coverage of professional accounting subjects and closely related topics in commercial law, business, and information systems.

Courses taken during M.Ac. candidacy are designed to build upon the technical skills acquired during the undergraduate program, broaden the student's perspective on the role of accounting in organizations and decision making, and further develop written and oral communication skills. This course work focuses on the conceptual and economic foundations of accounting with applications to current and emerging problems of professional practice. In addition, the master's-level course work provides an opportunity to acquire added expertise in one of four areas of specialization: financial accounting/auditing, management information systems, taxation, and managerial accounting.

Students who seek admission to the M.Ac. program must apply to The University of Iowa Graduate College. Applicants for admission to the Graduate College must include scores attained on the Graduate Management Admission Test (GMAT). Admissions are considered on the application review dates for enrollment in fall or spring semester or summer session: October 1, December 1, April 15, and July 15.

Students with a variety of academic backgrounds may enter the M.Ac. program. Those who enter with an undergraduate degree in accounting are expected to complete the degree in a calendar year. Those entering from a nonaccounting undergraduate degree program typically require four semesters to complete the M.Ac. program. All programs are adjusted to reflect the particular academic background of each candidate.

Accounting majors in the undergraduate program are subject to the probation and dismissal rules described in the Tippie College of Business Introductory section of the Catalog. Students in the M.Ac. program are subject to the probation and dismissal rules described in the Graduate College section of the Catalog.

### Bachelor of Business Administration

To enter the Professional Program in Accounting, undergraduate students must complete 60 s.h. of course work at The University of Iowa (or equivalent work at another institution) and be admitted to the Tippie College of Business. The following general prebusiness core courses must be completed before admission to the professional program. (Automatic admission to the Professional Program in Accounting requires a B- average in 06A:001 and 06A:002, a University of Iowa g.p.a. of at least 3.00, and a cumulative g.p.a. of at least 3.00.)

- **06A:001 Introduction to Financial Accounting** 3 s.h.
- **06A:002 Managerial Accounting** 3 s.h.
- **06E:001 Principles of Microeconomics** 4 s.h.
- **06E:002 Principles of Macroeconomics** 4 s.h.
- **22M:017 Calculus and Matrix Algebra for Business** 4 s.h.
- **22S:008 Statistics for Business** 4 s.h.

Students receive the B.B.A. upon successful completion of the junior and senior years of the Professional Program in Accounting and the M.Ac. degree upon completion of the fifth year. Students should take the Graduate Management Admission Test (GMAT) during the summer before their senior year to facilitate their admission to the M.Ac. program.

### JUNIOR YEAR

**Fall Semester**

- **06A:131 Income Measurement and Asset Valuation** 3 s.h.
- **06A:133 Introduction to Taxation** 3 s.h.
- **06A:150 Professional Orientation Seminar Series (must be taken during first or second semester in the professional program)** 1 s.h.
- **06E:100 Introductory Financial Management (must be taken during first semester in the college)** 3 s.h.
- **06J:100 Foundations of Business** 3 s.h.
- **One business core requirement** 3 s.h.

The business core requirements (06J:047, 06E:048, 06E:100, 06M:100) may be taken in any sequence, preferably before the senior year; 06J:047 is a prerequisite to 06A:148, so it should be taken before spring semester of the senior year. Students must complete 06J:100 Foundations of Business during their first semester after admission to the Tippie College of Business.

**Spring Semester**

- **06A:130 Accounting for Management Analysis and Control** 3 s.h.
- **06A:132 Valuation of Financial Claims** 3 s.h.
- **06K:180 Applied Information Systems** 3 s.h.
- **Two business core requirements** 6 s.h.

Due to the overlap in course content, students who have taken 06A:130 Accounting for Management Analysis and Control may not receive credit towards graduation for 06A:121 Managerial Accounting and Decision Making; students who have taken 06A:131 Income Measurement and Asset Valuation may not receive credit for 06A:120 Financial Accounting and Reporting; and students who have taken 06A:133 Introduction to Taxation may not receive credit for 06A:113 Taxes and Business Decisions. The grades earned in 06A:113, 06A:120, and 06A:121 are not used in calculating an accounting major's grade-point average.

### Internship Program

All students who have departmental approval may receive 1 s.h. of academic credit for an internship.

### SENIOR YEAR INTERNSHIPS

Seniors who wish to integrate a formal accounting internship (06A:199) into their degree program during spring semester of the senior year should pursue the following plan of study. To receive up to 6 s.h. of academic credit for the internship, students must have been admitted to the M.Ac. Program and must have received departmental approval before the beginning of their internship semester. Students who participate in the spring internship program normally need to attend a summer session either before or after their senior year to complete the requirements for a B.B.A. degree.

Students may not count more than 6 s.h. earned in 06A:199 toward the degree.
Graduate Programs

Master of Accountancy

The Master of Accountancy (M.Ac.) is a nonthesis program that permits students sufficient flexibility to specialize in accounting areas according to their interests and objectives. A total of 30 s.h. beyond the B.B.A. is required for completion of the M.Ac. degree. At least 12 s.h. must be in graduate-level accounting courses. A total of at least 21 s.h. in 200-level courses must be completed.

The M.Ac. program offers students who enter with an undergraduate degree in accounting the opportunity to focus their elective course work in one of four areas of specialization. The program is designed to be completed within one calendar year. Those who enter the program with a bachelor’s degree in another area of business or with no prior study in business or accounting generally take two years to complete the degree.

Courses leading to areas of specialization and those required for the core program are as follows. Because of the cross-disciplinary nature of the subject matter included in the areas of specialization, courses in a number of other departments are included.

**SPECIALIZATION IN MANAGEMENT INFORMATION SYSTEMS**

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>06A:145 Accounting for Multi-Segment Enterprises</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06A:146 Government and Not-for-Profit Accounting</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06A:148 Business Law (or summer if offered)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Electives</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Noninternship Program for Seniors**

The following program of study should be pursued by students who do not wish to include the internship program during the senior year.

**Fall Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>06A:144 Auditing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>*Accounting elective</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Business core course (if not taken previously)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Two or three electives</td>
<td>6-9 s.h.</td>
</tr>
</tbody>
</table>

**Spring Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>06A:148 Business Law</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>*Accounting elective</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Electives</td>
<td>6 s.h.</td>
</tr>
</tbody>
</table>

*Students choose two of the three following accounting electives during their senior year. Only one accounting elective is required for students who complete 06A:199 Academic Internship during the spring semester of their senior year.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>06A:141 Advanced Tax Topics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06A:145 Accounting for Multi-Segment Enterprises</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06A:146 Government and Not-For-Profit Accounting</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

The Iowa Accountancy Act requires candidates who sit for the CPA examination to have a conferred baccalaureate degree, 24 s.h. in business course work, and 24 s.h. of course work in accounting beyond principles of accounting (06A:001). Also according to the Iowa Accountancy Act, the CPA certificate is not awarded to successful candidates in Iowa until they have completed 150 s.h. of course work and have no less than one year of experience.

**Management Information Systems Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>06K:226 Visual Basic Programming (if not already taken)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22C:106 Computer Science I (if not already taken)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Three 200-level information systems courses (06K or 22C)</td>
<td>9 s.h.</td>
</tr>
</tbody>
</table>

**General Electives**

Total of 6-9 s.h.

**SPECIALIZATION IN TAXATION**

**Accounting Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>06A:221 Financial Reporting: Theory and Practice</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06A:230 Advanced Auditing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06A:245 Financial Information and Capital Markets</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>06A:220 Design and Use of Cost Management Systems</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06A:231 Taxes and Business Strategy</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Finance Courses**

Total of 6 s.h.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>06N:225 Managerial Finance (requires consent of M.B.A. office)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>One additional 200-level finance course</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Management Information Systems Courses**

Total of 3-6 s.h.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>06K:226 Visual Basic Programming (if not already taken)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22C:106 Computer Science I (if not already taken)</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>06A:220 Design and Use of Cost Management Systems</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06A:231 Taxes and Business Strategy</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**General Electives**

Total of 6-9 s.h.

**SPECIALIZATION IN MANAGEMENT INFORMATION SYSTEMS**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>06A:201 Financial Reporting: Theory and Practice</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06A:230 Advanced Auditing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06A:231 Taxes and Business Strategy</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>06A:141 Advanced Tax Topics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06A:145 Accounting for Multi-Segment Enterprises</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06A:146 Government and Not-For-Profit Accounting</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06A:221 Financial Reporting: Theory and Practice</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06A:230 Advanced Auditing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06A:231 Taxes and Business Strategy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06A:241 Tax Research</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06A:245 Financial Information and Capital Markets</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Taxation Courses**

Total of 12 s.h.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>06A:231 Taxes and Business Strategy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06A:241 Tax Research</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>College of Law tax courses (except for 091:272 Basic Federal Income Taxation)</td>
<td>6 s.h.</td>
</tr>
</tbody>
</table>
General Electives
Total of 9 s.h.
College of Law courses (prefix 091) follow a different calendar than do business courses. Some courses may require consent of instructor.

SPECIALIZATION IN MANAGERIAL ACCOUNTING

Accounting Courses
Total of 12 s.h.
06A:220 Design and Use of Cost Management Systems 3 s.h.
Two of these:
06A:221 Financial Reporting: Theory and Practice 3 s.h.
06A:230 Advanced Auditing 3 s.h.
06A:231 Taxes and Business Strategy 3 s.h.
One of these (not already taken):
06A:141 Advanced Tax Topics 3 s.h.
06A:145 Accounting for Multi-Segment Enterprises 3 s.h.
06A:146 Government and Not-For-Profit Accounting 3 s.h.
06A:241 Tax Research 3 s.h.
06A:245 Financial Information and Capital Markets 3 s.h.

Electives
A total of 15 s.h. is required. Students must select a minor area consisting of at least 6 s.h.

Course Work for Students Without Undergraduate Degrees in Accounting
Courses taken by students who enter the program with an undergraduate degree not in accounting are determined by each student’s background and area of interest. In addition to meeting the core program requirements for the M.Ac., students typically take a combination of undergraduate and M.B.A. courses to remove academic deficiencies in quantitative methods, business, and accounting. Students with an undergraduate degree in another area of business typically are required to take 45-51 s.h. in order to complete the M.Ac. program. Those with degrees outside of business and with no accounting courses typically are required to take 57-60 s.h.

Admission
Students enrolled in the UI undergraduate degree program in accounting are encouraged to apply before the beginning of their senior year. Students must have completed the M.Ac. program and must have received departmental approval in order to receive up to 6 s.h. for the internship program taken during spring semester of the senior year. Students who have received B.B.A. degrees from other institutions and those who choose not to participate in the internship program may apply during their senior year.

Admission to the M.Ac. program is competitive. The admissions committee reviews applications on an individual basis, looking at both quantitative aspects (grade-point average and GMAT scores) and qualitative aspects of each applicant’s background and professional experience (if applicable). In reviewing applications, the committee seeks to assess an individual’s potential for academic success and future professional growth.

Admission to the program requires acceptance to the Graduate College.

Application Materials
Applicants to the Master of Accountancy program must submit a completed application file, including the following: an application to the Graduate Admissions Office; a copy of the application must be submitted to the Department of Accounting; official transcripts of all undergraduate and graduate course work submitted to the Office of Admissions by each institution attended; official Graduate Management Admission Test (GMAT) scores submitted to the Office of Admissions; the supplemental application form with essay responses, and a résumé and cover letter; and at least three letters of reference from former instructors or employers. Undergraduate accounting majors at The University of Iowa do not need to provide letters of reference.

Applicants whose first language is not English must submit an official Test of English as a Foreign Language (TOEFL) score of 600 or higher on the paper-based test or 250 on the computer-based test.

Application packets are available from the University’s Office of Admissions or from the Department of Accounting.

Application Deadlines
The Department of Accounting admissions committee reviews completed M.Ac. application files (which must include official GMAT scores) on four dates: April 15, July 15, October 1, and December 1. These are the application review dates regardless of whether a student plans to begin the M.Ac. program in the fall semester (August), spring semester (January), or summer session (June). Final Graduate College application deadlines are as follows.

Fall semester—July 15 (April 15 for international students)
Spring semester—December 1 (October 1 for international students)
Summer session—April 15 (March 1 for international students)

Joint M.Ac./J.D. Degree
The Department of Accounting and the College of Law offer a joint program that leads to an M.Ac. degree and a J.D. degree. Students in the program may apply up to 12 s.h. of law courses as electives in the Master of Accountancy program, and up to 12 s.h. of graduate accounting courses as electives in the J.D. program. A minimum of 18 s.h. of graduate course work in accounting is required for the joint M.Ac./J.D. degree. To participate in the joint program, students must be enrolled in the College of Law and must gain admission to the Graduate College.

Doctor of Philosophy
Students majoring in accounting may earn a Ph.D. in business administration. For information about degree requirements, see “Interdepartmental Graduate Programs” in the Tippie College of Business section of the Catalog.

Faculty
The department’s faculty members maintain currency in their discipline through active participation in the production and dissemination of accounting-related knowledge. They keep abreast of the latest developments in the field of education and the profession through participation in educational conferences and seminars and publication in leading academic journals.
Courses

Primarily for Undergraduates

06A:001 Introduction to Financial Accounting 3 s.h.
Accounting and financial reporting procedures used by business and not-for-profit entities; emphasis on accounting concepts and use of accounting information in making economic decisions. Prerequisite: sophomore standing or higher.

06A:002 Managerial Accounting 3 s.h.
Basic topics in cost behavior, measurement, accumulation, use of cost data for relevant analysis, budgeting, performance evaluation. Prerequisites: 06A:001; 06E:001, and 22M:017.

06A:020 Accounting for Nonbusiness Students 3 s.h.
Financial and managerial accounting: financial statements—their elements, formal, interrelationship, interpretation, and uses; analyzing corporate annual reports; cost/volume/profit relationships; decision analysis, performance evaluation.

For Undergraduate and Graduate Students

06A:113 Taxes and Business Decisions 3 s.h.
Tax concepts; emphasis on recognizing tax-planning opportunities, pitfalls inherent in common management decisions. Prerequisites: nonmajor standing or consent of advisor; and 06A:002 or equivalent.

06A:120 Financial Accounting and Reporting 3 s.h.
External financial reporting practices in context of decisions by management, current and potential stockholders, financial analysts; emphasis on interpretation, use of financial statements. Prerequisites: nonmajor standing or consent of advisor; and 06A:002 or equivalent.

06A:121 Managerial Accounting and Decision Making 3 s.h.
Cost estimation, measurement, and accumulation for the purposes of decision making, budgeting, cost control. Prerequisites: nonmajor standing, 06A:002 or equivalent, 06E:071, and 06E:070.

06A:130 Accounting for Management Analysis and Control 3 s.h.
Advanced topics in cost estimation, measurement, accumulation; use of cost data for decision making, performance evaluation in multi-unit organizations. Prerequisites: admission to professional program in accounting, 06E:071, and 06E:070.

06A:131 Income Measurement and Asset Valuation 3 s.h.
Accounting rules that determine how economic events and transactions are described in published financial reports; emphasis on revenue and expense recognition, asset valuation, accrual accounting model. Prerequisite: admission to Professional Program in Accounting or pre-accounting major.

06A:132 Valuation of Financial Claims 3 s.h.
Current and long-term liabilities and stockholders' equity, off-balance sheet financing, cash flow statement, earnings-per-share, financial instruments. Prerequisite: 06A:131.

06A:133 Introduction to Taxation 3 s.h.
Federal income taxation; individual, corporate, partnership, and trust taxation laws, regulations; emphasis on developing a broad perspective on structure, administration, rationale of federal income tax system. Prerequisite: admission to Professional Program in Accounting or pre-accounting major.

06A:141 Advanced Tax Topics 3 s.h.
Taxation of corporations, partnerships from organization through termination, individual, and trusts; emphasis on tax planning and evaluation of tax consequences of business decisions. Prerequisites: graduate standing in business and 06N:215 or equivalent or consent of instructor.

06A:146 Government and Not-For-Profit Accounting 3 s.h.
Accounting and financial reporting procedures used by government and not-for-profit entities; role of SEC in accounting regulation. Prerequisites: senior standing, and 06A:131 or 06A:240.

06A:148 Business Law 3 s.h.
Contracts, sales, partnerships, business organizations, other aspects of law applied to business. Prerequisites: senior standing and 06E:047.

06A:150 Professional Orientation Seminar Series 1 s.h.
Overview of careers in accounting, how accounting information is used in today's business world; the M.A.C. program and tracks, internships, technical and personal skills. Offered fall semesters. Corequisites: 06A:131 or 06A:132.

06A:170 Special Topics in Accounting 1-3 s.h.
Not announced. Prerequisite: consent of instructor.

06A:199 Academic Internship 1-3 s.h.
Professional internship experience with related course work (paper, oral presentation). Prerequisite: consent of undergraduate accounting adviser.

Primarily for Graduate Students

06A:220 Design and Use of Cost Management Systems 3 s.h.
Development of cost accumulation and reporting systems that complement a firm’s strategy and structure; how activity-based management systems increase competitiveness by helping a firm manage its processes. Prerequisite: 06A:130 or 06A:235 or consent of instructor.

06A:221 Financial Reporting: Theory and Practice 3 s.h.
Corporate accounting choices in frameworks of traditional accounting theory, economic consequences, firm valuation. Prerequisites: graduate standing in business and 06A:132.

06A:230 Advanced Auditing 3 s.h.
Advanced issues such as ethics, independence, regulation and litigation, audit evidence, models of audit testing. Prerequisites: graduate standing in business and 06A:144.

06A:231 Taxes and Business Strategy 3 s.h.
Effect of taxes on business decisions, including investment strategies, financial policies; emphasis on tax planning, evaluating tax consequences of business decisions. Prerequisites: graduate standing in business and 06N:215 or equivalent or consent of instructor.

06A:232 Contemporary Issues in Accounting 3 s.h.
Accounting research issues being addressed by AICPA, recognition and measurement issues related to derivative financial instruments, measuring and reporting comprehensive income, improving disclosure effectiveness. Prerequisites: 06A:132 or consent of instructor.

06A:235 Managerial Accounting 3 s.h.
Introduction to cost accumulation, reporting, cost management systems, managerial and divisional performance evaluation; appropriate use of cost data for short-and-long run decisions; product costing in manufacturing and service industries. Prerequisite: 06N:215 or consent of instructor.

06A:240 Financial Accounting Standards and Analysis 3 s.h.
Accounting model, underlying measurement concepts, valuation rules for assets, liabilities, related issues of income determination; emphasis on economic substance of transactions, evaluation and interpretation of financial data. Prerequisite: 06N:215.

06A:241 Tax Research 3 s.h.
Deciding what research is needed, evaluating tax material, developing faculty with electronic and printed tax materials. Prerequisites: 06A:141.

06A:245 Financial Information and Capital Markets 3 s.h.
Use of corporate financial statements for investment and lending decisions; emphasis on financial analysis techniques, valuation, business analysis, cash flow projection, credit scoring, related research evidence. Prerequisite: 06A:240 or equivalent.

06A:286 Seminar in Accounting Research arr.
Forum on current research in accounting, related disciplines; faculty, student, guest papers. Ph.D. dissertation proposals. Prerequisite: doctoral standing or consent of instructor.

06A:287 Seminar in Selected Accounting Topics arr.
Individual study, research paper preparation. Prerequisites: doctoral standing and consent of instructor.

Prerequisites: doctoral standing and consent of instructor.

ECONOMICS

Chair: Marylene Beth Ingram

Professors: William P. Albrecht (Justice Professor of International Business), Gary C. Fethke (Leonard A. Hadley Professor of Leadership), Robert Fonythe (Leonard A. Hadley Chair in Leadership), John W. Fuller, John E. Geweke (Harriet E. and George Professor of Economic Theory), Srirahi Govindan, Marylene Beth Ingram, Forrest D. Nelson, George R. Neumann (George Daily Professor of Economics), Harry J. Paarsch, Thomas F. Pope, B. Ravikumar (Henry B. Tippie Research Professor of Economics), Raymond G. Riezman (Henry B. Tippie Research Professor of Economics), N.E. Savin (George Daily Professor of Economics), Charles H. Whitman (C. Woody Thompson Professor of Economics), Stephen D. Williamson (Chester A. Phillips Professor of Economics)

Professors emeriti: Carol C. Fethke, Hyman Joseph, Gerald L. Nordquist, Larry Sorgen, Calvin D. Siebert, S.Y. Wu

Associate professors: Paolo Chirarudato, John L. Solow

Assistant professors: Marina Azzimonti Renzo, Fernando Bertran, April M. Franco, Matthew F. Mitchell, Christopher M. Sleet, Galina Vreeshchagina

Undergraduate degrees: B.A., B.S., B.B.A. in Economics

Undergraduate nondegree program: minor in Economics

Graduate degrees: M.A., Ph.D. in Economics

Web site: http://www.biz.uiowa.edu/economics

Economics is the study of how societies allocate limited resources to achieve competing ends. Using both empirical and deductive methods, economics analyzes incentives, constraints, organizational forms, and market forces to understand patterns of production, exchange, and consumption of goods and services. It treats diverse issues such as wealth and poverty, government expenditures and taxation, prosperity and depression, inflation and unemployment, relations between management and labor, economic growth, environmental protection, health care delivery, the war on drug abuse, free trade versus protectionism, U.S. competitiveness in international markets, and the quality of American education.

Undergraduate Programs

The baccalaureate programs in economics provide an excellent educational background for a variety of positions in business and government. Graduates find employment in banking, financial institutions, industrial firms, and trade organizations and in federal, state, and local government agencies dealing with economic policy, regulation, and analysis. Economics also provides excellent preparation for the study of law and for graduate study in fields such as business management, public administration, hospital and health administration, urban and regional planning, transportation, journalism, political science, and statistics.

The department offers three undergraduate degrees—the Bachelor of Arts (B.A.) and Bachelor of Science (B.S.) in the College of Liberal Arts and Sciences and the Bachelor of
Bachelor of Arts

Requirements for the B.A. with a major in economics are as follows.

All of these:
06E:071 Statistics for Strategy Problems 3 s.h.
22M:017 Calculus and Matrix Algebra for Business (students who have taken 22M:021 Calculus and Modeling I or 22M:025 Calculus I or 22M:031 Engineering Mathematics I: Single Variable Calculus may use that class) 4 s.h.
22S:008 Statistics for Business 4 s.h.

A total of 21 s.h. in 100-level economics theory and field courses, as follows.

All of these:
06E:104 Microeconomic Theory 3 s.h.
06E:105 Macroeconomics 3 s.h.
Two advanced field courses chosen from 06E:170 through 06E:189 6 s.h.
Three additional courses chosen from 06E:111 through 06E:189 9 s.h.

Unless otherwise approved by the director of undergraduate studies, no more than 6 of the 21 s.h. required in 100-level economics courses may be satisfied by transfer or correspondence credit. Students should take 06E:104 and 06E:105 at The University of Iowa.

PREREQUISITES

Most 100-level courses in economics have as prerequisites both 06E:001 and 06E:002, or consent of instructor; 06E:001 and 22M:017, or consent of instructor, are required for 06E:104; and 06E:002 and 22M:017, or consent of instructor, are required for 06E:105. Course 22S:008 is prerequisite to 06E:071; 06E:104, and/or 06E:105 are prerequisite to courses numbered above 06E:170.

Bachelor of Science

The B.S. requires the following.

One of these sequences:
22M:021-22M:022 Calculus and Modeling I-II 8 s.h.
22M:025-22M:026 Calculus I-II 8 s.h.

One of these:
22S:120 Probability and Statistics 4 s.h.
22S:130-22S:131 Introduction to Mathematical Statistics I-II 6 s.h.

A total of 21 s.h. in 100-level economics theory and field courses, as follows.

All of these:
06E:104 Microeconomic Theory 3 s.h.
06E:105 Macroeconomics 3 s.h.
06E:184 Introduction to Econometrics 3 s.h.
Two additional advanced field courses numbered from 06E:170 through 06E:189 6 s.h.
Two additional courses chosen from 06E:111 through 06E:189 6 s.h.

Unless otherwise approved by the director of undergraduate studies, no more than 6 of the 21 s.h. required in 100-level economics courses may be satisfied by transfer or correspondence credit. Students should take 06E:104 and 06E:105 at The University of Iowa.

For students planning to pursue a graduate degree in economics, 22S:130 and 22S:131 are recommended in lieu of 22S:120.

Bachelor of Business Administration

In addition to the common requirements of the Henry B. Tippie College of Business, the B.B.A. in economics requires 18 s.h. in 100-level economics courses, including the following. Students should take 06E:104 and 06E:105 at The University of Iowa.

All of these:
06E:104 Microeconomic Theory 3 s.h.
06E:105 Macroeconomics 3 s.h.
Two field courses numbered from 06E:170 through 06E:189 6 s.h.

Four-Year Graduation Plan

B.A. and B.S. Students

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

These checkpoints apply to both the Bachelor of Arts and the Bachelor of Science.

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

Before the fifth semester begins: at least one-half of the semester hours required for graduation, 06E:001 and 06E:002, and the math component of quantitative courses required for major

Before the seventh semester begins: three-quarters of the semester hours required for graduation, 06E:104 and 06E:105, and one 100-level economics course

Before the eighth semester begins: three 100-level economics courses, including one advanced course (numbered 06E:170 through 06E:189), and the statistics component of the quantitative course requirement

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

B.B.A. Students

For information about four-year graduation for B.B.A. students, contact the Undergraduate Program Office or see “Four-Year Graduation Plan” in the Tippie College of Business section of the Catalog.

Honors

B.A. and B.S. Students

Students in the College of Liberal Arts and Sciences working toward a B.A. or B.S. with an economics major are encouraged to take part in the honors program in economics, which gives high-achieving students the opportunity to pursue special research interests. Honors students in economics must be members of the University Honors Program, which requires them to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information).

To enter the honors program, students must have completed 06E:104 Microeconomic Theory and 06E:105 Macroeconomics before the senior year. Honors students typically register for 06E:194 Honors Seminar in the fall of the senior year. Then they design and complete a research project under the guidance of a supervising faculty member, earning up to 6 s.h. in 06E:195 Senior Thesis in Economics. The thesis is presented orally to a committee of three faculty members, typically the undergraduate honors adviser, the student's research supervisor, and a third faculty member agreed upon by the student and the honors adviser.

Interested students should consult the honors adviser by the second semester of their junior year.

B.B.A. Students

The Tippie College of Business offers qualified economics students the opportunity to pursue honors study. For more information, contact the Undergraduate Programs Office or see “B.B.A. with Honors” in the Tippie College of Business section of the Catalog.

Minor

The minor in economics requires at least 15 s.h. in economics with a g.p.a. of at least 2.00; 12 of the 15 s.h. must be taken at The University of Iowa in courses numbered above 06E:100.
Course Work for Nonmajors

Students in the College of Liberal Arts and Sciences may wish to use economics courses as part of the General Education Program or other majors. Principles of Microeconomics (06E:001) and Principles of Macroeconomics (06E:002) are approved for General Education in social sciences; they introduce the broad field of economics and the specialized topics of upper-division courses. The intermediate theory courses in microeconomics (06E:104) and macroeconomics (06E:105) provide a deeper foundation in the core theories and methods of the discipline. They serve as preparation for upper-division field courses or as terminal courses in an economics study plan.

Course work in economics can be related to majors in many other fields—for example, history majors might take 06E:178 American Economic History; political science majors could elect 06E:119 Economics of the Government Sector and 06E:125 International Economics; global studies majors, 06E:133 Environmental and Natural Resource Economics; pre-law students, 06E:171 Antitrust: Legal and Economic Analysis; and engineering majors, 06E:172 Law and Economics; mathematics and engineering majors, 06E:104 Microeconomic Theory and 06E:187 Introduction to Mathematical Economics; and statistics majors, 06E:184 Introduction to Econometrics. The Handbook for Economics Majors lists economics courses that complement studies in other fields.

A number of students combine related interests by pursuing double majors in economics and another field, such as computer science, geography, global studies, history, mathematics, political science, sociology, or statistics.

Undergraduate Economics Association

Students are invited to join the undergraduate Economics Association. The group sponsors programs to help students plan for careers or to elect a major in economics, provides political science, sociology, or statistics.

Graduate Programs

Master of Arts

The Master of Arts is offered only to students working toward a Ph.D. in economics.

Doctor of Philosophy

The Ph.D. program is designed to provide rigorous training in economic theory, econometrics, and applied economics. The program has six components: a coordinated sequence of core courses, a qualifying examination, a research paper, a set of major field courses, a dissertation proposal and comprehensive examination, and a dissertation. Applications for admission and financial support are considered any time until February 15 for fall semester enrollment.

Courses

Primarily for Undergraduates

Note: 06E:001 and 06E:002 may be taken in either order or they may be taken simultaneously; they are approved for General Education in social sciences.

06E:001 Principles of Microeconomics 3-4 s.h.

Organization, workings of modern economic systems; role of prices, competition in efficient allocation of resources and promotion of economic welfare; alternative systems; national and international trade. GE: social sciences (except for B.B.A. students).

06E:002 Principles of Macroeconomics 3-4 s.h.

National income and output; employment and inflation; money, credit; government finance; monetary, fiscal policy; economic growth, development; international finance. GE: social sciences (except for B.B.A. students).

06E:027 Contemporary Economic Problems and Policy 3 s.h.

Economic concepts developed and applied to analysis of current social problems, issues, policies; representative topics include jobs versus environment, free trade versus protectionism, the war on drugs, American competitiveness, health care delivery costs and choices.

06E:029 First-Year Seminar 1-2 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor may include outside activities (films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

06E:071 Statistics for Strategy Problems 3 s.h.

Continuation of 22S:008; working knowledge of statistical techniques, scientific data based approach to problem formulation and solution, statistical techniques in the context of real data analysis, assessment of defects in statistical analyses, using data for making business decisions, choosing appropriate statistical procedures, developing skill in communicating statistical results to audiences without knowledge of statistics. Prerequisites: 22M:017 and 22S:008.

06E:104 Microeconomic Theory 3 s.h.

Economic theory of consumer behavior; producer behavior; role of markets in coordinating economic decisions; conditions for efficient resource allocation. GE: social sciences.

06E:105 Macroeconomics 3 s.h.

Measurement of national product, unemployment, inflation; determination of national income, price level; role of stabilization policies; economic growth, dynamics of inflation. Prerequisites: 06E:002 and 22M:017, or consent of instructor.

06E:111 Labor Economics 3 s.h.

Microeconomic analysis of labor markets, related institutions; labor supply decisions made by workers, labor demand decisions made by firms, market equilibrium, economic analysis of unions; returns to education, family decisions. Open to students who have taken or are taking 06E:175. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:113 Health Economics 3 s.h.

Structure of America's health care industry, economic analysis applied to its problems of production, pricing, distribution, cost-effectiveness, financing of medical costs, role of government. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:117 Money, Banking, and Financial Markets 3 s.h.

Role of money, institutions in determination of income, employment, prices in domestic and world economy. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:119 Economics of the Government Sector 3 s.h.

Economic functions of government in modern economies; economic decision making, budgetary processes, effects of government expenditures, taxation on allocation of resources, distribution of income, economic growth, stability. Prerequisites: 06E:001 and 06E:002, or consent of instructor, closed to students who have taken 06E:176.

06E:125 International Economics 3 s.h.

Modern theories of international trade and investment; role of tariffs and other restrictions of international trade; foreign exchange markets, international monetary arrangements, international economic policy. Prerequisites: 06E:001 and 06E:002, or consent of instructor, closed to students who have taken 06E:173.
06E:129 Economic Growth and Development 3 s.h.
Economic growth, theories of growth, accumulation of physical and human capital, predictions of economic growth models compared to observed changes in living standards. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:130 Environmental and Natural Resource Economics 3 s.h.
Structure of environmental and natural resource use problems; efficient mechanisms and other policies for environmental protection, management of common property resources: Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:135 Regional and Urban Economics 3 s.h.
Theory of location and regional development; central place theory, why cities exist and trade with one another; models of land use patterns, rents; empirical tests of models; policy applications. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:141 Economics of American Industries 3 s.h.
Structural evolution, imperfect competition, resource allocation, development of public policy on monopoly; selected industries. Prerequisites: 06E:001 and 06E:002, or consent of instructor; closed to students who have taken 06E:177.

06E:145 Introduction to the Economics of Transportation 3 s.h.
Transportation markets—intensity, rural, urban; transportation modes—rail, highway, air, water, pipeline; issues in environmental and economic regulation, finance, policy, planning, management, physical distribution. Same as 044:133, 102:133.

06E:160 Economics of Families and Households 3 s.h.
Micro- and macroeconomic theory applied to economic decisions of families, household; practical and theoretical issues in income generation, spending and saving decisions, risk management and asset allocation, investments, and intergenerational wealth transfers. Prerequisites: 6 s.h. of 100-level economics courses and junior or senior standing, or consent of instructor.

06E:164 Economics in Transition 3 s.h.
Emerging markets and newly industrialized nations in Asia, Latin America, the former Soviet Union, developments in these regions over past decades—financial crises, industrialization, economic reform, privatization, impact of globalization, development of human capital, income distribution; role of institutions in the transition from poor to rich nation. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:171 Antitrust: Legal and Economic Analysis 3 s.h.
Topics in federal antitrust policy, merger policy, monopolization, predatory pricing, collusion, vertical restrictions, resale price maintenance, enforcement; case law, economics literature. Prerequisites: 06E:104 or 091:208 or consent of instructor. Same as 091:201.

06E:172 Law and Economics 2-3 s.h.
Law examined through analytic tools of microeconomics; impact of legal rules on resource allocation, risk bearing, distribution of economic well being. Prerequisites: 06E:104 and 06E:105, or consent of instructor.

06E:173 Advanced International Economics 3 s.h.
Neoclassical model of international trade, imperfect competition and international trade and investment, role of trade barriers; regional trade agreements and the World Trade Organization. Prerequisites: 06E:104 and 06E:105, or graduate standing; closed to students who have taken 06E:125.

06E:176 Public Sector Economics 3 s.h.
Economic functions of government, budgetary processes; effects of government expenditures, taxation on resource allocation, income distribution, economic growth and stability. Prerequisites: 06E:104 and 06E:105, elementary calculus and statistics; closed to students who have taken 06E:111.

06E:177 Industrial Organization 3 s.h.
Market structure; effects of business practices, informational problems on market structure; appraisal of antitrust policies; government regulation of business. Prerequisites: 06E:104 and 06E:105, closed to students who have taken 06E:141.

06E:178 American Economic History 3 s.h.
Emphasis on role of regulatory, technology. Prerequisites: 06E:104 and 06E:105 for economics majors; 06E:001 and 16A:006 for non-economics majors. Same as 16A:144.

06E:179 History of Economic Thought 2-3 s.h.
Evolution of economics as a social science; ideas of Smith, Ricardo, Malthus, Marx, Marshall, Keynes, and their major critics. Prerequisites: 06E:104 and 06E:105.

06E:184 Introduction to Econometrics 3 s.h.
Single equation linear statistical models, estimation and hypothesis testing; serial correlation, heteroscedasticity, generalized least squares estimation; specification analysis; errors in variables; emphasis on interpretation, application of econometric models, methods, use of computer. Prerequisite: 225:120 or equivalent.

06E:187 Introduction to Mathematical Economics 3 s.h.
Mathematical structure of economic principles, problems, systems; may include constrained optimization, choice under uncertainty, general equilibrium and welfare economics, dynamical systems and control theory, game theory. Prerequisite: 06E:104 or consent of instructor.

06E:189 Topics in Economics arr.
Varied content. Prerequisite: consent of instructor.

For Advanced Undergraduates

06E:194 Honors Seminar 3 s.h.
Preparation for writing senior honors thesis. Prerequisite: consent of instructor.

06E:195 Senior Thesis in Economics arr.
Independent research leading to senior honors thesis. Prerequisite: consent of instructor.

06E:196 Readings and Independent Study in Economics arr.

06E:199 Internship Participation in approved internship programs (e.g., Washington Center Internships). Prerequisite: consent of instructor.

Primarily for Graduate Students

With consent of the department chair, qualified undergraduates may enroll in courses listed for graduate students.

06E:200 Economic Analysis I 3 s.h.
Theory of the competitive firm, theory of the consumer, noncompetitive models of the firm; optimization, constrained optimization, comparative statics, introduction to game theory. Prerequisites: 06E:101 and 06E:106.

06E:201 Economic Analysis II 3 s.h.
Behavior under uncertainty, macroeconomic models; dynamic programming, asset pricing, saving, consumption. Prerequisites: 06E:104 and 06E:105.

06E:203 Microeconomics I 3 s.h.
Price theory; emphasis on problem formulation and solving, economic intuition; producer and consumer behavior, competitive and noncompetitive markets, welfare economics. Offered fall semesters. Prerequisite: 06E:200 or consent of instructor.

06E:204 Macroeconomics I 3 s.h.
Economic growth, business cycles, money and inflation. Offered fall semesters. Prerequisite: 06E:201 or consent of instructor.

06E:205 Microeconomics II 3 s.h.
Behavior under uncertainty, general equilibrium and well-being, models with asymmetric information. Offered spring semesters. Prerequisite: 06E:203 or consent of instructor.

06E:206 Macroeconomics II 3 s.h.
Dynamic macroeconomic models, stochastic macroeconomic time consistency equilibrium business cycle theory. Offered spring semesters. Prerequisite: 06E:204 or consent of instructor.

06E:211 Mathematical Economics I 3 s.h.
Convex analysis in economic theory; ordinal and cardinal preference relations, quasiconcave, concave numerical representations; separation principle for convex sets—linear programming, concave programming; Brouwer fixed point theorem; existence of competitive equilibrium. Prerequisite: 06E:205 or consent of instructor.

06E:212 Mathematical Economics II 3 s.h.
Theories of n-person games, noncooperative or cooperative; applications to general economic analysis. Prerequisite: 06E:211.

06E:221 Econometrics Statistical inference in single and multiple equation stochastic models, models with nonindependent or nonidentically distributed error structure, dynamic models; OLS, GLS, IV, ML estimation, asymptotic distribution theory, exact, asymptotic hypothesis tests. Prerequisite: 225:154 or equivalent.

06E:222 Applied Econometrics 3 s.h.
Empirical problems; multiple linear regression, nonlinear regression, maximum likelihood, hazard functions, univariate and multivariate time series, flexible functional forms. Prerequisite: 06E:221.

06E:223 Econometric Theory I 3 s.h.
Statistical theory underlying econometric inference; emphasis on estimation, hypothesis testing in linear models. Prerequisites: 06E:221.

06E:234 International Business—M.B.A. 3 s.h.
Problems in international business; how to export, how to deal with import barriers, international joint ventures; country studies. Prerequisite: consent of instructor.

06E:235 International Trade Theory 3 s.h.
The theory of international trade, including basic models of international trade; capital and labor mobility and trade; protection of international trade; the political economy of international trade; empirical applications of international trade. Prerequisite: consent of instructor.

06E:241 Macroeconomics III 2-6 s.h.
Current research in macroeconomics; development of research topics with emphasis on theoretical and empirical analysis. Prerequisites: 06E:205 and 06E:221.

06E:245 Monetary Theory 3 s.h.
Research at the frontier of monetary theory and policy; overlapping generations models, search models of money, representative agent monetary models, intermediation and banking theory, and financial contracts.

06E:250 Labor Economics 3 s.h.
Problems and models, including intertemporal models of labor markets; uncertainty and labor market activity; retirement decisions, economic theories of fertility, economics of discrimination, job search models, economic models of unions; bargaining and strikes, public sector labor markets; determinants of income distribution; emphasis on empirical verification of theory. Prerequisites: 06E:205, and 06E:184 or 06E:221.

06E:271 Industrial Organization 2-4 s.h.
The firm, monopolistic competition, oligopoly and work competition; industrial organization, nature of equilibrium under uncertainty. Prerequisites: 06E:205 and 06E:211.

06E:272 Economics of Organization 2-4 s.h.
Theoretical design of mechanisms for achieving efficient allocations within organizations, and development of theoretical frameworks to implement such mechanisms; applications to problems in industrial organization and labor economics. Prerequisite: 06E:205.

06E:273 The Economics of E-Commerce 3 s.h.
Economic principles applied to strategic questions in the information economy and to issues such as pricing, compatibility, intellectual property; how to manage a company's information assets wisely and profitably. Repeatable.

06E:299 Contemporary Topics in Economics 3 s.h.
Topics not offered in other courses. Repeatable. Prerequisite: consent of instructor.

06E:300 Readings in Economics arr.
Prerequisite: consent of instructor.

06E:301 Thesis in Economics arr.
Prerequisite: consent of instructor.

Advanced Graduate Seminars

06E:310 Seminar in Economic Theory arr.
Prerequisite: consent of instructor.

06E:311 Seminar in Economic Theory II arr.
Prerequisite: consent of instructor.

06E:321 Workshop in Microeconomics 1-3 s.h.
Prerequisite: consent of major status.

06E:322 Workshop in Macro and Monetary Economics 1 s.h.
Prerequisite: consent of instructor.
FINANCE

Chair: Anand M. Vihl
Professors: Jarrius Sa-Aadu (Chester A. Phillips Professor of Business Finance and Real Estate), Emmett J. Vaughan (J.E. Partington Professor of Insurance), Anand M. Vihl (Marvin and Rose Lee Pomerantz Chair in Finance), Paul A. Weiler (John F. Murray Professor)

Professors emeriti: Charles E. Marbery, Robert M. Soldofsky, Richard A. Stevenson

Clinical professor: John H. Spitzer

Associate professors: David S. Bates, Matthew T. Biller, Protect Handa, Erik Lie, Thomas A. Bets, Gerry L. Suchane

Associate professor emeritus: G. Carl Schweser

Assistant professors: Toby Daglish, Jon A. Gartinkel, Todd L. Houge, Yiming Qian, Ashish Tiwari

Lecturers: Chesa Colloredo-Mansfeld, Larry Hersherger, Brian Kelly, Heidi Lie

Undergraduate degree: B.B.A. in Finance
Graduate degrees: M.B.A.; Ph.D. in Business Administration

Web site: http://www.biz.uiowa.edu/finance

Graduate Program

For information about the M.B.A. degree, contact the Tippie School of Management.

The Master of Arts in business administration is a nonthesis degree awarded only to students who begin the Ph.D. program and decide not to continue. Incoming students may not elect to pursue the M.A.

Students majoring in finance may earn a Ph.D. in business administration. For information about degree requirements, see “Interdepartmental Graduate Programs” in the Tippie College of Business section of the Catalog.

Courses

Primarily for Upper-Division Undergraduates

06F:100 Introductory Financial Management 3 s.h.
Financial management goals and decision making; valuation of bonds and stocks; risk and return analysis; portfolio diversification; market efficiency; asset pricing, cost of capital; agency theory, capital budgeting, financial planning. Prerequisites: 06A:002, 06E:001, 06E:002, and junior standing.

06F:101 Directed Readings in Finance arr.
Individually guided readings in selected topics. Prerequisite: consent of instructor.

06F:102 General Insurance 3 s.h.
Theory of risk, risk bearing; arrangements for dealing with risk; insurance industry; types and functions of insurers, government regulation; social insurance, features of insurance contracts. Prerequisites: 06E:001 and 06E:002.

06F:110 Financial Information Technology 2 s.h.
Applications of commonly used financial software and data systems reviewed by student teams. Prerequisite: 06F:100.

06F:111 Investment Management 3 s.h.
Investment in marketable securities in domestic and international markets; financial markets, securities trading, evaluation of risk/return trade-off, formulation and implementation of investment strategies, efficient portfolio formation. Prerequisite: 06F:100. Corequisite: 06F:110.

06F:112 Security Analysis 3 s.h.
Valuation of financial securities using cases and financial information technology; macroeconomic and industry analysis, regulatory analysis, financial statement analysis, technical analysis, trading securities, active portfolio management, performance evaluation. Prerequisite: 06F:110 or consent of department.

06F:113 Markets for Fixed Income Securities 3 s.h.
Theories of fixed income securities, term structure of interest rates; asset pricing models, valuation of fixed income securities and contingent claims, fixed income portfolio management, immunization strategies, yield curve analysis. Prerequisite: 06F:100 or consent of instructor. Corequisite: 06F:110.

06F:114 Commercial Banking 3 s.h.
Management of commercial banks and financial service firms, asset and liability management, credit policy, capital risk, liquidity planning, use of swaps and derivatives to hedge interest rate risk, global banking, investment strategies. Prerequisite: 06F:100. Corequisite: 06F:110.

06F:115 Investment Banking 3 s.h.
How investment bankers interact with clients in access to growth capital, sales, trading, and investment banking; role of investment bankers through varied perspectives, including those of the client (e.g., corporate CFO, treasurer, corporate development officer) and service provider (e.g., investment banking professional). Prerequisites: 06F:100, and 06F:117 or consent of instructor.

06F:116 Futures and Options 2-3 s.h.
Use of options, futures, and other derivative securities in financial management; understanding of derivative securities, markets, trading technology, applications of risk management and speculation, pricing relations with underlying securities. Prerequisite: 06F:111.

06F:117 Corporate Finance 3 s.h.
Advanced managerial decision making; corporate financial policy, dividend policy, agency theory, corporate restructuring, capital structure strategies, mergers and acquisitions, option pricing fundamentals, convertible debt, callable debt, warrants. Prerequisite: 06F:100. Corequisite: 06F:110.

06F:120 Real Estate Process 3 s.h.
Fundamentals of real estate finance and investments; economic base analysis, asset analysis, market analysis, mortgage markets, underwriting, alternative mortgages, mortgage-backed securities, real estate securitization, land development, valuation principles, investment analysis, tax consideration, portfolio management. Prerequisite: 06F:100. Corequisite: 06F:110.

06F:130 International Finance 3 s.h.
International monetary systems, exchange rate determination, use of currency derivative in hedging and risk management, currency swaps, foreign direct investment, international corporate finance, international capital budgeting, international portfolio investment, Third World debt, privatization, joint ventures. Prerequisite: 06F:100. Corequisite: 06F:110.

06F:190 Hawkinson Scholar Seminar 1 s.h.
Advanced skill and understanding for pursuit of investment banking, management consulting careers; specialized resume and interview training, industry presentations, relevant case assignments. Repeatable. Prerequisite: consent of Hawkinson Institute director.

06F:199 Academic Internship 1-2 s.h.
Professional internship experience with associated academic credit. Repeatable. Prerequisite: consent of major department head.

Primarily for Graduate Students

06F:201 Directed Readings in Finance arr.
Prerequisite: consent of instructor.

06F:202 M.A. Research Report 1 s.h.
Prerequisites: nonthesis M.A. candidacy and consent of instructor.

06F:205 Contemporary Topics in Finance arr.

06F:206 Structured Finance—Securitization 3 s.h.
Securitized assets such as mortgages, asset-backed securities (e.g., credit cards, auto loans, trade receivables); collateralized debt obligations, institutional structures, credit risk, valuation, cost of capital, corporate finance, accounting, legal, tax, and regulatory issues associated with securitization; how to design, value, and implement structured-finance products that create value from stakeholders’ perspectives. Prerequisite: 06N:225.

06F:209 Investment Banking 3 s.h.
Overview of the industry consolidation, underwriting of securities, merger valuation options, legal and regulatory considerations, IPOs, private equity; industry-specific case studies, student/practitioner discussion of issues facing the industry. Prerequisite: 06N:225 for graduate students; consent of instructor for undergraduates.

06F:210 Financial Information Technology 0 s.h.
Applications of commonly used financial software and data systems reviewed by student teams.

06F:211 Risk Management in Business 3 s.h.
Nonpecuniary risks in business and selected management devices for dealing with them; managing risk in the new economy; assumption of avoidance, transfer, and reduction of risk; risk management decisions; control of risk and reduction of losses; case studies in risk management. Prerequisite: 06N:225.

06F:212 Investment Management 3 s.h.

06F:213 Futures and Options 3 s.h.
Use of options, futures, and other derivative securities in financial management; types of derivative securities, markets, trading technology; applications of risk management and speculation, pricing relations with underlying securities. Prerequisite: 06N:225. Corequisite: 06F:210.

06F:214 Real Estate Finance and Investments 3 s.h.

06F:215 Corporate Finance 3 s.h.
Structured problems and cases in corporate financial policy decisions; financial decision models, current and fixed asset administration, cost of capital, capital budgeting, dividends, cash flows, financial reporting, capital market analysis, capital structure, mergers and acquisitions, financial conglomerates, cross-border transactions, international capital markets. Prerequisites: 06F:201, 06F:202, 06F:206, and consent of instructor.

Undergraduate Program

The undergraduate finance program provides a balance of theory, applications, and financial information technology to facilitate the transition from classroom to workplace. Through fundamental finance principles and state-of-the-art financial market information technologies, students develop analytical abilities to interpret financial markets data, implement the latest trading and investment strategies, and make effective managerial decisions in national as well as international settings.

Careers for students majoring in finance include corporate treasury operations, cash management, mergers and acquisitions, investment banking, sales and security trading, security analysis, commercial banking and financial services, credit analysis, mortgage lending, financial planning, consulting, public administration, and venture capital. The program stresses learning by doing, partnership with industry, and internships, with the goal of enhancing students’ career development. Students receive a balanced education consistent with the globalization of business and the explosion in financial markets and information technology.

Requirements for the Bachelor of Business Administration with a finance major (20 s.h.) are as follows.

06A:120 Financial Accounting Reporting 3 s.h.
06F:110 Financial Information Technology 2 s.h.
06F:111 Investment Management 3 s.h.
06F:117 Corporate Finance 3 s.h.

Three of these:

06F:102 General Insurance 3 s.h.
06F:112 Security Analysis 3 s.h.
06F:113 Markets for Fixed Income Securities 3 s.h.
06F:114 Commercial Banking 3 s.h.
06F:115 Investment Banking 3 s.h.
06F:116 Futures and Options 3 s.h.
06F:126 Real Estate Process 3 s.h.
06F:130 International Finance 3 s.h.
flow projections, cash management, mergers and acquisitions.

06F:216 Fixed Income Securities 3 s.h.
Theories of fixed income securities, term structure of interest rates; asset pricing models, valuation of fixed income securities, valuation of contingent claims, fixed income portfolio management. Prerequisite: 06F:225. Corequisite: 06F:210.

06F:217 Bonds and Interest Rate Derivatives 3 s.h.
Advanced tools for managing interest rate risk and models of interest rate dynamics applied to fixed-income securities, fixed-income derivatives; projects in fixed income management. Prerequisites: 06F:213 or 06F:216, and consent of instructor.

06F:218 Advanced Corporate Finance 3 s.h.

06F:220 Management of Financial Institutions 3 s.h.
Principles of lending and asset/liability management; leverage and capital requirements for financial institutions; money market and capital market instruments; interest rate futures, swaps, options. Repeatable. Prerequisite: 06N:225. Corequisite: 06F:201.

06F:221 Applied Securities Management I 3 s.h.
Handson approach to portfolio management; setting goals, trading securities, developing programs to evaluate fund performance. First of a two-semester sequence; must be followed by 06F:222. Prerequisites: 06N:225 and consent of instructor.

06F:222 Applied Securities Management II 3 s.h.
Continuation of 06F:221. Prerequisites: 06F:221 and consent of instructor.

06F:223 International Finance 3 s.h.
Impact of international financial markets on business and financial decisions in foreign environments; global finance, foreign exchange, Eurocurrency markets, currency derivatives, risk hedging, international bond and equity markets, privatization, joint ventures. Prerequisites: 06N:225 and two years experience, or consent of instructor. Corequisite: 06F:210.

06F:224 Security Analysis 3 s.h.
Valuation of financial securities (primarily equities) using discounted cash flow model; industry, regulatory analysis; financial statement analysis; active portfolio management; value-based management techniques; valuation of firms outside the United States. Prerequisite: 06N:225.

06F:225 Finance Theory I 3 s.h.
Options valuation; financial leverage, market efficiency and information economics, term structure models, capital market equilibrium models, corporate finance issues; emphasis on theory. Prerequisite: doctoral standing.

06F:226 Seminar in Corporate Finance 3 s.h.
Valuation (DCF and CAPM); valuation under certainty, uncertainty; financial structure, cost of capital, dividend policy; firm investment in perfect, imperfect capital markets; options pricing theory; state preference model. Prerequisite: doctoral standing.

06F:227 Finance Theory II 3 s.h.
Continuous time theories of financial markets, including connection between an arbitrage-free pricing system and martingales; pricing of contingent claims, general equilibrium and term structure theory. Prerequisite: doctoral standing.

06F:228 Advanced Empirical Finance 3 s.h.
Market efficiency and term structure theory tests; tests of asset pricing models; dividend policy and financial structure issues. Prerequisite: doctoral standing.

06F:229 Seminar in Finance 0 s.h.
Prerequisite: doctoral standing.

06F:290 Thesis in Business Arr.
Prerequisite: consent of instructor.

MANAGEMENT AND ORGANIZATIONS

Chair: Frank L. Schmidt
Professors: Murray R. Barrick (Stanley M. Howe Chair in Leadership), Jay Christensen-Szalanski, Nancy K. Hauserman (Williams Teaching Professor), Lola L. Lopes (Marvin and Rose Lee Pomerantz Chair in Business Administration), Michael K. Mount (Henry B. Tippie Research Professor of Human Resources), Sara L. Rynes (John F. Murray Professor), Frank L. Schmidt (Ralph L. Sheets Professor)

Professors emeriti: Norman F. Kallaus, Charles R. Klasson, Gerald L. Rose, Peter P. Schoderbek, Duane E. Thompson, Jude P. West

Associate professors: Terry L. Boles, Amy L. KristofBrown, Greg L. Stewart

Clinical associate professor: Lon D. Moeller

Assistant professors: Kenneth G. Brown, Roy R. Suddaby

Clinical assistant professor: David K. Hensley

Lecturer: Dennis M. Schrag

Terry L. Boles, Amy L. Sheets, Martin H. Johnson, Jude P. West, Fred X. Wang, Joie M. Allgood

Sheets Professor)

Primarily for Upper-Division Undergraduates

06J:047 Introduction to Law 3 s.h.
General history, structure of law, law's action in guiding changing economic, social patterns. Prerequisite: sophomore standing.

06J:048 Introduction to Management 3 s.h.
Principles of management, organizational structure, decision making, leadership, line-staff relationships, administration of organizations. Prerequisite: sophomore standing.

06J:100 Foundations of Business 3 s.h.
Substantive areas of the business curriculum, development of a successful career; strategies for a competitive advantage in the business environment. Prerequisites: admission to Tippie College of Business and junior standing.

06J:101 Directed Readings in Management and Organizations Arr.
Prerequisite: consent of instructor.

06J:130 Individuals, Teams, and Organizations 3 s.h.
Theories of organizational behavior applied to current business trends for individuals, teams, organizations; personality, managing diversity, work-family conflict, self-managed teams, charismatic leadership, work motivation, managing conflict, organizational culture. Prerequisites: 06J:047 and 06J:048.

06J:131 Strategic Human Resource Management 3 s.h.
People management activities, policies, and practices that promote effective organizations; how changes in technology and business restructuring, legal and social concerns, other issues affect human resource management. Prerequisites: 06J:047 and 06J:048.

06J:132 Law and Ethics in Management 3 s.h.
Laws affecting employers and employees, such as regulatory health and safety policies, unemployment and retirement benefits, and employment discrimination including hiring, termination, testing issues. Prerequisites: 06N:047 and 06J:048.

06J:140 Competitive Strategy 3 s.h.
How top managers plan and execute strategies that enable businesses to compete in local and global markets; analytical skills for coping with organizational uncertainties and business realities from the perspective of a senior manager; case studies. Prerequisites: 06N:001 and 06J:048. Recommended: senior standing.

06J:143 Dynamics of Consulting 3 s.h.
Consulting models, trends, and processes; characteristics of internal versus external consulting services; integration of behavioral and organizational principles into programs for organizational change. Prerequisite: 06J:130.

06J:145 Training and Developing Human Resources 3 s.h.
Differences in international and domestic business; cultural, legal, political factors for managers. Prerequisite: junior standing or higher.

Graduate Programs

For information about the M.B.A. degree, contact the Tippie School of Management. A Master of Arts in business administration is awarded as a special nonthesis degree only to students who begin the Ph.D. program and decide not to continue. Incoming students may not elect to pursue the M.A.

Students majoring in human resource management and organizational behavior may earn a Ph.D. in business administration. For information about degree requirements, see “Interdepartmental Graduate Programs” in the Henry B. Tippie College of Business section of the Catalog.

Courses

06J:130 Individuals, Teams, and Organizations 3 s.h.
Theories of organizational behavior applied to current business trends for individuals, teams, organizations; personality, managing diversity, work-family conflict, self-managed teams, charismatic leadership, work motivation, managing conflict, organizational culture. Prerequisites: 06J:047 and 06J:048.

06J:131 Strategic Human Resource Management 3 s.h.
People management activities, policies, and practices that promote effective organizations; how changes in technology and business restructuring, legal and social concerns, other issues affect human resource management. Prerequisites: 06J:047 and 06J:048.

06J:132 Law and Ethics in Management 3 s.h.
Laws affecting employers and employees, such as regulatory health and safety policies, unemployment and retirement benefits, and employment discrimination including hiring, termination, testing issues. Prerequisites: 06N:047 and 06J:048.

06J:140 Competitive Strategy 3 s.h.
How top managers plan and execute strategies that enable businesses to compete in local and global markets; analytical skills for coping with organizational uncertainties and business realities from the perspective of a senior manager; case studies. Prerequisites: 06N:001 and 06J:048. Recommended: senior standing.

06J:143 Dynamics of Consulting 3 s.h.
Consulting models, trends, and processes; characteristics of internal versus external consulting services; integration of behavioral and organizational principles into programs for organizational change. Prerequisite: 06J:130.

06J:145 Training and Developing Human Resources 3 s.h.
Differences in international and domestic business; cultural, legal, political factors for managers. Prerequisite: junior standing or higher.
and for long-term business success and job satisfaction; experience

Skills for management of high-conflict situations in the workplace

Current approaches to implementing effective teams within

06J:235 Maximizing Team Performance 3 s.h.
Prerequisite: 06N:212.

06J:205 Contemporary Topics in Management
Prerequisite: nonthesis M.A. student standing.

06J:201 Directed Readings in Management and
Organizations arr.
Prerequisite: nonthesis M.A. student standing.

06J:199 Academic Internship arr.
Prerequisite: 06J:131.

06J:168 Topics in Management 3 s.h.
Topics not regularly offered in other courses. Prerequisites: 061:047 and 061:048.

06J:171 Strategic Reward Systems 3 s.h.
Role of pay and other rewards on organizational objectives; compensation's impact on employee behavior and performance; mix of pay and benefits in compensation systems; legal environment regulating pay and benefits; nonmonetary forms of reward. Prerequisite: 061:131.

06J:199 Academic Internship arr.
Professional internship experience with associated academic content. Repeatable. Prerequisite: consent of major department head.

Primarily for Graduate Students

06J:201 Directed Readings in Management and
Organizations arr.
Prerequisite: nonthesis M.A. student standing.

06J:205 Contemporary Topics in Management and
Organizations arr.
Ph.D. seminar; research topics in human resources and organizational behavior.

06J:232 Legal Environment of Business 3 s.h.
Legal issues surrounding start-up and day-to-day management of a business; contracts and business formations, tort law, employment law, business ethics, alternative dispute resolution. Prerequisite: 06N:212.

06J:235 Maximizing Team Performance 3 s.h.
Current approaches to implementing effective teams within organizations; team selection and formation, group dynamics, facilitation skills, performance and obstacle management.

06J:242 Managing and Preventing Conflict 3 s.h.
Skills for management of high-conflict situations in the workplace and for long-term business success and job satisfaction; experience developing mediation based skills and communication techniques to prevent and resolve workplace conflicts.

06J:243 Dynamics of Consulting 3 s.h.
Consulting models, processes; characteristics of internal versus external consulting services; integration of behavioral and organizational principles into organizational change programs. Prerequisite: 06N:212.

06J:244 Managing Organizational Performance 3 s.h.
Concepts and practices for effective management; measurement, and improvement of organizational performance; establishing and communicating organizational expectations, the manager as coach and mentor; measurement and methodologies, performance improvement methods. Prerequisite: 06N:212 or course in management.

06J:245 Training and Developing Human
Resources 3 s.h.
Concepts, practices in training and development; strategic issues affecting the design of training and evaluation of training programs and of career management and development activities. Prerequisite: 06N:212.

06J:246 International Management 3 s.h.
Management issues encountered in international business settings; assessing international political-economic and socio-cultural environments; managing a multicultural workforce; forming international structures and alliances; developing international business strategy.

06J:247 Nonprofit Organizational Effectiveness I 3 s.h.
Operational and financing aspects of nonprofit management; mission and governance of organization; strategic planning for effective management, including finance, budget, income generation, fund-raising. Same as 024:147, 025:176, 032:127, 042:157, 049:175, 096:168.

06J:248 Nonprofit Organizational Effectiveness II 3 s.h.
Qualities for leadership of nonprofit organizations, including relationships with staff and volunteers; leadership of nonprofit and not-for-profit organizations; marketing, public relations; advocacy strategies for nonprofits. Same as 024:148, 025:177, 032:128, 042:158, 049:176, 096:169.

06J:152 Collective Bargaining 3 s.h.
Labor relations; theories of collective bargaining, techniques related to negotiations, dispute resolution, emphasis on union/management dynamics. Prerequisite: 06J:131.

06J:150 Dynamics of Negotiations 3 s.h.
Predictable aspects and dynamics of bargaining experiences, simulations, experimental exercises to foster skills needed for effective negotiation in almost any situation. Prerequisite: 06J:130.

06J:159 Introduction to the U.S. Health Care
System Same as 174:102.

06J:160 Staffing Organizations 3 s.h.
Staffing processes, external influences such as labor markets, the legal environment; support activities such as job analysis, employment planning, staffing activities such as internal and external recruiting, selection. Prerequisite: 06J:131.

06J:161 Managing Through Motivation 3 s.h.
Contemporary theories of motivation and their application to performance, role of intrinsic motivation, justice, incentive pay, job design, goals, feedback, social influence, attitudes, creativity. Prerequisite: 06J:130.

06J:162 Leadership and Personal Development 3 s.h.
Practical development and application of leadership and managerial skills to enhance individual and organizational effectiveness. Prerequisite: 06J:130.

06J:168 Topics in Management 3 s.h.
Topics not regularly offered in other courses. Prerequisites: 061:047 and 061:048.

06J:250 Dynamics of Negotiation 3 s.h.
Predictable aspects and dynamics of bargaining experiences, simulations, experimental exercises to foster skills needed for effective negotiation in almost any situation. Prerequisite: consent of instructor for non-M.A. students.

06J:257 Legal Issues in Human Resource
Management 3 s.h.
Laws, regulations governing human resource management policies, practices; employee discipline, termination, layoff, privacy, involvement programs; occupational safety and health; workers’ compensation; discrimination. Prerequisite: 06N:212.

06J:260 Staffing Organizations 3 s.h.
Staffing processes; external influences such as labor markets, the legal environment; support activities such as job analysis, employment planning, staffing activities such as internal and external recruiting, selection. Prerequisite: 06N:212.

06J:261 Strategic Management of Change 3 s.h.
How congruence in organizational strategy, structure and culture, job design, and employee characteristics produces effective organizations; emphasis on management of organizational change, implementing and working in teams, project management. Prerequisite: 06N:212.

06J:267 Organizational Theory Ph.D. 3 s.h.
Organizational theory, effect of changing environment and technological factors on organizational structure and effectiveness; resource dependency and power, conflict, interorganizational network, population ecology, economic theories of organization, institutional theory.

06J:288 Seminar in Management
Topics vary. 3 s.h.
For Undergraduate and Graduate Students

06K:100 Operations Management 3 s.h.
Strategic, tactical, operational issues that arise in management, production and service operations; product and process design, facilities planning, quality management, materials management, operations planning and scheduling, emerging technologies in production and service management. Prerequisite: junior standing.

06K:101 Directed Readings arr.
Prerequisite: consent of instructor.

06K:102 Management Science Topics arr.
Special topics in management information systems. Prerequisite: junior standing.

06K:103 Introduction to PC Hardware 1 s.h.
Basic hardware that makes up a PC, how each component relates to the other. Prerequisite: management information systems major.

06K:121 Information Systems Management 3 s.h.
Managerial aspects of information technology, strategic and operational information technology issues; case studies. Prerequisites: 06K:182 and 06K:183.

06K:126 Visual Basic Programming 3 s.h.

06K:128 Web and Multimedia 3 s.h.
How multimedia tech is accomplished; tools used with each tech and modifications needed to tailor efficiently on the web; projects culminating in a web site.

06K:134 Information and Knowledge Management 3 s.h.
Methods to determine where the ability to capture and reuse organizational knowledge will prove most profitable to companies; how to design processes and technologies to use this information.

06K:170 Managerial Decision Models 3 s.h.
Mathematical programming, including linear, nonlinear, dynamic programming, with applications in economics, management; classical optimization techniques, transportation, network flow problems. Prerequisite: 06K:070.

06K:180 Applied Information Systems 3 s.h.
Application of computer technology to accounting and transaction processing systems; information systems infrastructure and trends; problem solving with microcomputer spreadsheets, database, accounting cycle operations using accounting software. Prerequisites: 06K:001, 06K:002, 06K:071, and 06K:070.

06K:182 Applications Database Management Systems 3 s.h.
Design, implementation of a database using relational DBMS; emphasis on issues of logical and physical design, database administration, concurrency control, maintenance. Prerequisite: 06K:070.

06K:183 Systems Analysis and Design 3 s.h.
Design, implementation of an information system; student projects in determination of information needs, system design, information plan development; construction of prototype information system. Prerequisite: business administration senior standing. Corequisite: 06K:182 or consent of instructor.

06K:184 Introduction to Data Communications 3 s.h.
Computer communications: computer-communication system, hardware, data transmission principles; examples of existing communication networks; related managerial issues. Prerequisites: 06K:070 and business administration senior.

06K:185 Software Development Project 3 s.h.
Development of a system using techniques from previous courses; project planning, user expectations, system architecture and design, quality management; presentation of results. Prerequisite: 06K:182.

06K:189 E-Commerce Technology 3 s.h.
Technical tools for building e-commerce web sites; Dot Net versions of active server pages, VB, C#, student project to build prototype of an e-commerce site. Prerequisite: 06K:070.

06K:190 Network Design and Performance 3 s.h.
Computer software as central to the study of network facilities selection, performance metrics; skill development through work with the telecommunications hierarchy’s layered structure. Prerequisite: 06K:184.

06K:191 Business Consulting 3 s.h.
Organizational consulting; emphasis on integration of strategic, business processes, technology, and change management through case-based learning techniques; proposal simulation. Prerequisite: 06K:070.

06K:192 Intelligent Systems with Data Mining 3 s.h.
Artificial intelligence techniques and applications for decision support systems; search, knowledge representation and engineering, logic, expert systems, intelligent agents. Prerequisites: 06K:126 and 06K:182.

06K:199 Academic Internship arr.
Professional internship experience with associated academic content. Repeatable. Prerequisite: consent of major department head.

Primarily for Graduate Students

06K:201 Directed Readings arr.
Prerequisite: consent of instructor.

06K:202 M.A. Research Report 1 s.h.
Prerequisite: nonthesis M.A. candidate and consent of instructor.

06K:217 Data and Decisions II 3 s.h.
Advanced quantitative analysis techniques with management applications; multiple regression, time series, Monte-Carlo simulation, and linear, nonlinear, and discrete optimization; emphasis on spreadsheet-based modeling. Prerequisite: 06K:216 or consent of instructor.

06K:220 Introduction to Information Systems 3 s.h.
Effective ways for business firms to harness the power of information technology for strategic purposes; conventional and emerging architectures of information systems; integrated perspective on structural relationships among IT components; emphasis on case studies.

06K:221 Managing Information Technology 3 s.h.
Effective management of information systems; focus on managerial issues rather than underlying technologies. Pr- or corequisite: 06K:220.

06K:223 Management of E-Commerce Systems 3 s.h.
Technological tools that support health care administration, management, and decision making. Prerequisite: graduate standing or consent of instructor. Same as 021:275, 050:283, 051:187, 056:186, 056:001, 060:283, 174:226.

06K:226 Visual Basic Programming 3 s.h.

06K:228 Web and Multimedia 3 s.h.
How multimedia tech is accomplished; tools used with each tech and modifications needed to tailor efficiently on the web; projects culminating in a web site. Prerequisite: 06K:070.

06K:230 Database Systems 3 s.h.
Theories and methodologies for semantic, logical, and physical database design, entity/relationship diagrams and their mapping to database schemas; normalization; languages for relational database systems, including relational algebra, Structured Query Language, query by example, query optimization and index selection; database and view creation, query and update processing; form and report design; practice with commercial DBMS products; integrity, security, concurrency control, transaction recovery.

06K:233 Text Retrieval 3 s.h.
Theories and models for automatic text representation and retrieval using large text databases; methods for evaluating retrieval algorithms; alternative query models—Boolean, extended Boolean, probabilistic, vector, fuzzy and rough set models; vocabulary normalization; architecture of World Wide Web search engines and metadada. Prerequisite: 06K:230. Same as 021:230.

06K:234 Information and Knowledge Management 3 s.h.
Methods to determine where the ability to capture and reuse organizational knowledge will prove most profitable to companies; how to design processes and technologies to use this information. Same as 021:234.

06K:238 Data Mining and Marketing 3 s.h.
Data mining and knowledge discovery as applied to marketing, with emphasis on customer relationship management; predictive modeling, data reduction, association rules.

06K:250 Computer Networks 3 s.h.
Software engineering paradigms, software project planning and risk analysis, software analysis/design methodologies, software
quality assurance/testing, software configuration management, computer-aided software engineering tools useful for business applications; group project. Prerequisites: 06K:220 and 06K:226. Same as 021:232.

06K:277 Management Sciences Topics 3 s.h.
Prerequisite: consent of instructor.

06K:278 Web Mining 3 s.h.
Topics for mining the web and other unstructured or semistructured, hypertextual, distributed information repositories; crawling, indexing, ranking, filtering algorithms.

06K:284 Operations Strategy 3 s.h.
A firm’s strategic use of tools for competitive advantage through decisions on facility size, degree of vertical integration, process technology selection, proper approach to quality, productivity, and technology.

06K:285 Project Management 3 s.h.
Preparation for managing projects and project portfolios, project selection, project planning and budgeting, scheduling, resource allocation, project control, integration of project planning tools, including project management software.

06K:286 Optimization Methods 3 s.h.
Mathematical programming models; linear and integer programming, transportation models, large-scale linear programming, network flow models, convex separable programming. Prerequisites: calculus and linear algebra.

06K:287 Discrete Optimization 3 s.h.
Introduction to modeling and solving discrete optimization problems; integer programming, network flows, dynamic programming. Prerequisite: 06K:286 or consent of instructor.

06K:289 E-Commerce Technology 3 s.h.
Technological tools for building e-commerce web sites; Dot Net versions of active server pages, VB, C#; student project to build prototype of an e-commerce site.

06K:290 Thesis in Management Sciences 3 s.h.
Prerequisites: Ph.D. candidate and consent of instructor.

06K:292 Supply Chain Management 3 s.h.
Design, operation, and management of a supply chain; supplier and customer contracting and partnering, inventory, transportation, and logistics. Prerequisite: 06K:229.

06K:294 Rapid Continuous Improvement 3 s.h.
Hands-on experience working on rapid continuous improvement (RCI) teams sponsored by industrial affiliates of the business college involved in using RCI. Offered spring break. Prerequisite: consent of instructor.

06K:296 Service OM 3 s.h.
Major issues which represent great challenges for managers of service operations in the pure service sector (e.g., legal, banking, travel and tourism, health care, etc.).

06K:297 Research Seminar in Management Sciences 0 s.h.
Current research topics. Prerequisite: doctoral standing or consent of instructor.

06K:299 Special Topics in Management Sciences 3 s.h.
Prerequisite: consent of instructor.

Associate professor emeritus: E. John Kotman
Assistant professors: Sri Devi Deepak, Dhananjay Nayak/Mukainooglu, Long, L. Rego
Lecturer: David E. Collins
Undergraduate degree: B.B.A. in Marketing
Graduate degree: M.B.A.; Ph.D. in Business Administration
Web site: http://www.biz.uiowa.edu/mrktg

Undergraduate Program

The Department of Marketing offers courses that help undergraduate students understand the business, social, and economic roles of marketing and prepare them for marketing careers.

Several decades ago, the study of marketing dealt almost exclusively with business activities involved in the flow of goods from production to consumption. Today the study of marketing includes principles that are more widely applicable; they are as relevant to the success of arts, sports, and social programs as they are to firms selling goods and services. A major in marketing includes study in the behavioral sciences, communications, statistical analysis, and computer methods as well as marketing decision making.

Students who graduate with a major in marketing may find opportunities for employment as market analysts, merchandise managers, buyers, purchasing agents, advertising managers, brand managers, or sales representatives in a variety of profit and nonprofit organizations.

The requirements for the Bachelor of Business Administration with a major in marketing are as follows.

06M:134 Marketing Research 3 s.h.
06M:135 Consumer Behavior 3 s.h.
06M:147 Marketing Management (must be taken in senior year) 3 s.h.

At least two, but no more than three, of these:
06M:105 Web Business Strategy 3 s.h.
06M:125 Direct Marketing Strategies 3 s.h.
06M:137 Advertising Theory 3 s.h.
06M:139 Sales Management 3 s.h.
06M:151 International Marketing 3 s.h.
06M:190 Topics in Marketing 3 s.h.

Graduate Programs

For information about the M.B.A. degree, contact the Tippie School of Management.

The Master of Arts in business administration is a nonthesis degree awarded only to students who begin the Ph.D. program and decide not to continue. Incoming students may not elect to pursue the M.A.

Students majoring in marketing may earn a Ph.D. in business administration. For information about degree requirements, see “Interdepartmental Graduate Programs” in the Tippie College of Business section of the Catalog.

Courses

Primarily for Upper-Division Undergraduates

06M:100 Introduction to Marketing Strategy 3 s.h.
Philosophy and activities of marketing; marketing environment of an organization; strategies with respect to marketing decisions, buyer behavior, spreadsheet analysis of marketing problems. Prerequisites: 06M:001 and junior standing.

For Undergraduate and Graduate Students

06M:101 Directed Readings in Marketing 3 s.h.
Prerequisite: consent of instructor.

06M:105 Web Business Strategy 3 s.h.
Introduction to World Wide Web business and marketing, concepts, methods, and applications associated with doing business on the web; web page construction and design, case studies and/or entrepreneurial projects. Prerequisite: 06M:100.

06M:125 Direct Marketing Strategies 3 s.h.
Principles and processes of direct and database marketing; insight into the requirements for building a customer-based marketing strategy. Prerequisite: 06M:100.

06M:134 Marketing Research 3 s.h.
Marketing, research methods; role of marketing research information as a tool in management decision making. Prerequisites: 06M:071 and 06M:100.

06M:135 Consumer Behavior 3 s.h.
Behavioral and social aspects of marketing, research methods and findings from behavioral sciences, their relation to production, consumption, and marketing of products, services. Prerequisite: 06M:100.

06M:137 Advertising Theory 3 s.h.
Advertising as a promotional force; emphasis on theory, planning, resulting strategic and tactical decisions made by advertising executives. Prerequisite: 06M:100.

06M:139 Sales Management 3 s.h.
Personal selling, management of sales force; emphasis on recruitment, selection, training of sales representatives; problems in allocation of sales effort, supervision, control. Prerequisite: 06M:100.

06M:147 Marketing Management 3 s.h.
Marketing problems of organizations; emphasis on marketing manager’s role in developing, presenting goal-oriented marketing strategies; application of marketing concepts to real business situations. Prerequisites: 06M:134, 06M:135; a marketing course numbered above 100, and senior standing.

06M:151 International Marketing 3 s.h.
Differences in global environments: cultural, political, and economic conditions affect market entry strategies and marketing mix decisions; development of marketing plans for non-U.S. environments. Prerequisite: 06M:100.

06M:190 Topics in Marketing 3 s.h.
Topics not regularly offered in other courses. Prerequisites: 06M:100 and consent of instructor.

06M:199 Academic Internship 3 s.h.
Professional internship experience with associated academic content. Repeatable. Prerequisite: consent of major department head.

Primarily for Graduate Students

06M:201 Directed Readings in Marketing 3 s.h.
Prerequisite: consent of instructor.

06M:205 Web Business Strategy 3 s.h.
Introduction to World Wide Web business and marketing, concepts, methods, and applications associated with doing business on the web; web page construction and design, case studies and/or entrepreneurial projects. Prerequisite: 06M:211.

06M:223 Brand Management 3 s.h.
Strategies for building, leveraging, and defending brands; principles of consumer behavior, how they relate to building brand identity and equity, branding of consumer goods and services. Prerequisite: 06M:211.
Tippie School of Management—M.B.A. Program  •  Tippie College of Business 251

06M:225 Direct Marketing Strategies  3 s.h.
Principles and processes of direct and database marketing; insight into requirements for building a customer-based marketing strategy. Prerequisite: 06N:211.

06M:227 Category Management  3 s.h.
Marketing strategy related to manufacturing product line interactions, retailer product assortment, consumer response; category definition, product line pricing and branding, cross-category promotions, channel coordination, efficient consumer response, loyalty programs, database marketing. Prerequisite: 06N:211.

06M:230 Marketing Research Methods  3 s.h.
Managerial applications of marketing research techniques, including methods of design, analysis, interpretation of marketing research studies; assessing value of information, sampling, sources of bias, instrument construction, interpretation of scanner data, geodemographic data, applications of integrated research systems. Prerequisites: 06N:211 and 06N:216.

06M:231 Business to Business Marketing  3 s.h.
Industrial buyer behavior, buyer-seller relationships, interactive product policy and market segmentation, distribution and selling systems; skill development in market strategy formulation for industrial products and services, and in solving problems and making decisions about industrial marketing. Prerequisite: 06N:211.

06M:232 Buyer Behavior  3 s.h.
Behavior of consumers and industrial buyers; research methods and findings from behavioral sciences applied to production, consumption, and marketing of products, services; application of consumer behavior concepts to managerial decision making. Prerequisite: 06N:211.

06M:233 Service Marketing  3 s.h.
Production, consumption, and marketing of services; solutions to problems faced by service managers; development of an organizational marketing system for delivery of quality service. Prerequisite: 06N:211.

06M:234 Product Management  3 s.h.
Techniques of new product development; idea generation, concept screening, product design, market testing, forecasting, brand management strategies within the firm. Prerequisites: 06N:211 and 06N:216.

06M:235 International Marketing  3 s.h.
Domestic versus international perspectives; identification and evaluation of opportunities and risks in non-U.S. markets; research problems in global markets; effects of international organizations, foreign exchange, macroeconomic policies, local law, and cultural differences on consumer behavior and marketing decisions; multinational versus global marketing strategies (entry, product adaptation, channel logistics, pricing, promotion); emphasis on practical applications. Prerequisite: 06N:211.

06M:236 Advertising and Promotion Strategy  3 s.h.
Marketing communications as dialogue between producers and consumers, how promotional mix evolves; emphasis on advertising, sales promotion, branding. Prerequisite: 06N:211.

06M:237 Field Studies in Marketing  3 s.h.
Experience in planning, designing, carrying out, reporting on a marketing research project for a profit or nonprofit client organization; completion of a field study in marketing research; meeting deadlines, viewing research findings into action recommendations for management. Repeatable. Prerequisites: 06N:211 and 06N:216. Recommended: 06M:230.

06M:238 Contemporary Topics in Marketing  3 s.h.
Topics not regularly offered in other courses. Prerequisites: 06N:211 and graduate standing.

06M:239 Analysis for Marketing Decisions  3 s.h.
Analysis, decision making in context of marketing programs; emphasis on functions of marketing research and models as they pertain to marketing manager’s role; marketing cases structured around spreadsheet analysis. Prerequisite: 06N:211. Recommended: 06M:230.

06M:242 Marketing Models—Ph.D.  3 s.h.
Theoretical, operational models in marketing, with emphasis on recent advances; in-depth criticism of models, participation in model development project. Prerequisite: consent of instructor.

06M:243 Research in Consumer Behavior  3 s.h.
Key facets of consumer behavior—information processing, perception, memory, learning, attitude formation, attitude change, decision making, emotion, behavioral research methods. Prerequisite: consent of instructor.

06M:244 Multivariate Application—Ph.D.  3 s.h.
Multivariate analysis: principal components, factor analysis, canonical correlation, discriminant analysis, linear structural relations; emphasis on structural commonality across procedures, applications of procedures to marketing research problems. Recommended: substantial familiarity with linear algebra and inferential statistics. Prerequisite: consent of instructor.

06M:245 Research Workshop—Ph.D.  arr.
Individual research topics. Prerequisite: consent of instructor.

06M:290 Thesis in Marketing  arr.
Prerequisite: consent of instructor.

Tippie School of Management—
M.B.A. Program

Associate dean: Gary J. Gaeth
Graduate degree: M.B.A.
Web site: http://www.biz.uiowa.edu/mba

The Henry B. Tippie School of Management offers a Master of Business Administration (M.B.A.) degree program that provides students with a foundation for future growth and flexibility in professional management. The program, which is fully accredited by AACSB—the Association to Advance Collegiate Schools of Business, enables students to build broad-based personal portfolios of analytical skills, knowledge, leadership, and professional experiences. The curriculum is rigorous, yet learning takes place in a collaborative environment that builds teamwork skills and encourages independent problem solving.

Students in the Tippie M.B.A. program come from every region of the United States and from countries throughout the world. They represent a variety of backgrounds, undergraduate majors, and prior professional experiences. The curriculum is designed for college graduates in any field—previous coursework in business is not required. However, full-time work experience is a requirement for admission. Interested students should review a current M.B.A. brochure, available from the Tippie School of Management, for complete program requirements.

Full-Time, On-Campus Program

The full-time, on-campus M.B.A. program requires 60 s.h., including a minimum of 12 s.h. in an area of concentration. Students may transfer up to 9 s.h. from another AACSB-accredited institution.

Plan of Study

First Semester

06N:199 M.B.A. Competitive Prep  0 s.h.
06N:211 Marketing Management  3 s.h.
06N:213 Managerial Economics  2 s.h.
06N:215 Corporate Financial Reporting  3 s.h.
06N:216 Data and Decisions  3 s.h.
06N:225 Managerial Finance  3 s.h.
06N:230 Seminar in Strategic Management  1 s.h.

Second Semester

06N:212 Management in Organizations  3 s.h.
06N:229 Operations Management Concentrations/Electives  9 s.h.

Third Semester

06N:228 International Economic Environment of the Firm  2 s.h.
06N:240 Strategic Management and Business Policy  3 s.h.
Concentrations/Electives  10 s.h.

Fourth Semester

Concentrations/Electives  15 s.h.

CONCENTRATION OPTIONS

M.B.A. students choose an individual area of concentration during the first year of the program. The concentration consists of at least 12 s.h. in a specific discipline. Main areas of concentration include finance, marketing, strategic management and consulting, entrepreneurship, management information systems, and operations management. Individual students may devise their own concentration area, subject to approval by the Tippie School of Management.

ELECTIVES

Each student chooses 22 s.h. of graduate-level electives; up to 12 s.h. may be earned in nonbusiness electives. Students must have prior approval to take courses outside the Tippie School of Management.

Admission

Applicants to the M.B.A. program must submit a complete application file, including the following: a completed Tippie School of Management application form and fee; official transcripts of all undergraduate and graduate course work submitted to the Office of Admissions by each institution attended; official Graduate Management Admission Test (GMAT) scores; the completed supplemental application form with essay responses, and a résumé and cover letter; and at least three recommendations from employers or former instructors.

Applicants whose first language is not English must submit a score of 600 or higher (paper-based) or 250 or higher (computer-based) on the Test of English as a Foreign Language (TOEFL). Registration information is available from the University’s Office of Admissions.

APPLICATION DEADLINES

Students may enter the full-time, on-campus M.B.A. program only in the fall. Application deadlines are as follows.
April 15—international applicants for fall (August)
April 15—priority deadline for U.S. citizens and permanent residents applying for fall (August); July 1—U.S. citizens and permanent residents applying for fall (August)

Note: Applications received after April 15 are reviewed on a space-available basis.
M.B.A. for Professionals and Managers

The M.B.A. for Professionals and Managers (M.B.A.-P.M. Program) is tailored specifically for working professionals building on the synergies of working and concurrent learning. The program is designed to prepare graduates for a professional career in business or in the public sector. The curriculum is designed for students with varied backgrounds, undergraduate majors, and professional experience. Previous course work in business is not required.

Courses are offered each semester during evening hours in Cedar Rapids at the college’s Cedar Rapids Area Education and Conference Center; in Newton at the Newton Polytechnic campus of the Des Moines Area Community College; in Des Moines at the W.A. Krause Center for Entrepreneurial Education and the Des Moines Higher Education Collaborative; and in the Quad Cities at the Kah Educational Center in downtown Davenport. Students admitted to the M.B.A.-P.M. Program also may enroll in on-campus courses in Iowa City when space is available. Evening students may complete up to 30 s.h. of credit toward the M.B.A. on the Iowa City campus.

Plan of Study

Degree requirements include a business core of 10 courses, to develop competency in general management skills and key functional areas of business, and five business electives, for a total of 45 s.h. Elective courses, which contribute to the development of an area of expertise and foster a deeper understanding of management and business practices, are offered in marketing, finance, and management, with a smaller number offered in management information systems/databases, accounting, and entrepreneurship. Students earn an M.B.A. in three years by completing two courses each fall and each spring semester and one course during the summer. Students have some latitude in course sequence and length of time allowed to complete the plan of study. Following is a sample plan of study.

FIRST YEAR

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>06N:211</td>
<td>Marketing Management</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06N:212</td>
<td>Management in Organizations</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06N:215</td>
<td>Corporate Financial Reporting</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06N:216</td>
<td>Data and Decisions</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Business elective (summer session)</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

SECOND YEAR

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>06N:213</td>
<td>Managerial Economics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06N:225</td>
<td>Managerial Finance</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06N:227</td>
<td>Human Resource Management</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06N:229</td>
<td>Operations Management</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Business elective (summer session)</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

THIRD YEAR

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>06N:232</td>
<td>International Economic Environment</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>of the Firm</td>
<td></td>
</tr>
<tr>
<td>06N:240</td>
<td>Strategic Management and Business</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Policy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Business electives</td>
<td>6 s.h.</td>
</tr>
<tr>
<td></td>
<td>Business elective (summer session)</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Admission

Students may apply for admission for the fall or spring semester; applications are accepted throughout the year. Admissions decisions are based on the quality of work experience, undergraduate grade-point average, GMAT score, letters of reference, and completed application materials. Applicants should have a minimum of three years of professional postbaccalaureate work experience before admission.

APPLICATION DEADLINES

Applicants who meet the priority deadlines are assured of an admission decision before the registration period for admitted students. Those who are admitted to the program receive student registration priority.

June 1 — Priority deadline for fall (August); GMAT scores must be received by June 1.

July 15 — Final deadline for fall (August); GMAT scores must be received by July 15.

November 1 — Priority deadline for spring (January); GMAT scores must be received by November 1.

December 15 — Final deadline for spring (January); GMAT scores must be received by December 15.

Enrollment in Courses Before Formal Admission

With permission, students not yet admitted to the program may enroll in M.B.A.-P.M. courses over three semesters within a 12-month period, for a maximum of 9 s.h. One of the three courses must include 06N:215 Corporate Financial Reporting or 06N:216 Data and Decisions. Credits applied to the degree once the student is admitted to the program. Students requesting their first registration in an M.B.A. course must first submit their résumés to the Tippie School of Management for approval. To be considered for non-admitted status, prospective students should have a minimum of one-and-a-half years postbaccalaureate work experience.

Executive M.B.A. Program

The Executive M.B.A. also leads to the Master of Business Administration degree. Admission is limited to experienced executives who want to broaden their management skills without interrupting their professional careers. It is recommended that applicants have at least 10 years of postgraduate managerial experience. Previous academic work in business is not required. Course work is presented over 21 months. The program begins in mid-August with a five-day residency in Iowa City, followed by classes one day each week on alternating Fridays and Saturdays. Each entering class progresses through the program as a group. Classes for the Executive Engineer Dual Master’s Degree Program are held at the Cedar Rapids Area Education and Conference Center. Classes for the Des Moines Executive M.B.A. Program are conducted at the W.A. Krause Center for Entrepreneurial Education, and classes for the Iowa City Executive M.B.A. Program are held in the John Pappajohn Business Building. The Tippie School of Management also offers the Executive M.B.A. Program to students in Hong Kong.

Plan of Study

Degree requirements include two 5-day residency periods (one at the beginning of each academic year), a 7– to 10-day international business seminar (spring semester of the second year), 14 core courses, and two electives (selected and taken by all members of the class).

FIRST YEAR

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>06N:211 Marketing Management</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>06N:212 Management in Organizations</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>06N:213 Managerial Economics</td>
<td>1-3 s.h.</td>
<td></td>
</tr>
<tr>
<td>06N:215 Corporate Financial Reporting</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>06N:216 Data and Decisions</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>06N:225 Managerial Finance</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>06N:227 Human Resource Management</td>
<td>2-3 s.h.</td>
<td></td>
</tr>
<tr>
<td>06N:228 International Economic Environment of the Firm</td>
<td>1-3 s.h.</td>
<td></td>
</tr>
<tr>
<td>06N:230 Seminar in Strategic Management I</td>
<td>1-3 s.h.</td>
<td></td>
</tr>
</tbody>
</table>

SECOND YEAR

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>06N:229 Operations Management</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>06N:231 Seminar in Strategic Management II</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>06N:235 Seminar in International Business</td>
<td>0-3 s.h.</td>
<td></td>
</tr>
<tr>
<td>06N:240 Strategic Management and Business Policy</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>Business electives</td>
<td>6 s.h.</td>
<td></td>
</tr>
</tbody>
</table>

For more information, contact the Tippie School of Management.

Joint Degree Programs

Joint-degree programs allow students to pursue concurrently an M.B.A. in the Tippie School of Management and a J.D. in the College of Law, an M.A. in library and information science in the School of Library and Information Science, an M.S.N. in the College of Nursing, an M.H.A. in health management and policy in the College of Public Health, or an M.D. in the Carver College of Medicine. These programs allow students to earn both degrees more rapidly than if each degree were pursued independently. Interested students must make separate applications to each degree program.

Accelerated Professional Track

Highly qualified undergraduate students in the Colleges of Liberal Arts and Sciences or Engineering at The University of Iowa may be admitted to the Accelerated Professional Track (APT) program. These students begin taking the M.B.A. core courses as electives in their undergraduate program so they can earn both the bachelor’s and M.B.A. degrees in less time than...
would usually be required. APT students must complete a cooperative education experience while in the program. Interested students must have completed 60 s.h. of undergraduate study, earned a g.p.a. of at least 3.50, clearly defined their career goals, and indicated their intent to pursue both degree programs on a full-time basis. Students also must have a professional background similar to that of students enrolled in the M.B.A. program.

Courses

See individual department listings for M.B.A. elective courses.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>06N:000</td>
<td>M.B.A. Internship</td>
<td>0 s.h.</td>
</tr>
<tr>
<td>06N:199</td>
<td>M.B.A. Competitive Prep</td>
<td>0-1 s.h.</td>
</tr>
<tr>
<td>06N:200</td>
<td>Directed Readings—M.B.A.</td>
<td>1-3 s.h.</td>
</tr>
<tr>
<td>06N:210</td>
<td>Advanced Models for Decision Support</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06N:211</td>
<td>Marketing Management—M.B.A.</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06N:212</td>
<td>Management in Organizations</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06N:213</td>
<td>Managerial Economics</td>
<td>1-3 s.h.</td>
</tr>
<tr>
<td>06N:215</td>
<td>Corporate Financial Reporting</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06N:216</td>
<td>Data and Decisions</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06N:217</td>
<td>Ethics</td>
<td>1-2 s.h.</td>
</tr>
<tr>
<td>06N:225</td>
<td>Managerial Finance</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06N:227</td>
<td>Human Resource Management</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>06N:228</td>
<td>International Economic Environment of the Firm</td>
<td>1-3 s.h.</td>
</tr>
<tr>
<td>06N:229</td>
<td>Operations Management</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Courses and Departmental Electives

06N:220 Seminar in Strategic Management I 1-3 s.h.
Introduction to strategic management; the role of marketing, operations, and finance in strategic planning; case studies.

06N:221 Seminar in Strategic Management II 1-3 s.h.
Strategic management integrating all aspects of business; computer simulation, lectures, case studies, readings.

06N:235 Seminar in International Business 0-3 s.h.
Issues and challenges facing organizations doing business in international markets; social, economic, political factors, business policies and customs in the global environment; may include travel, study abroad. Repeatable. Prerequisite: M.B.A. student standing.

06N:240 Strategic Management and Business Policy 3 s.h.
Firm’s competitive strategy from a manager’s perspective; key strategic frameworks; integration of concepts learned throughout M.B.A. program, previous work experience.
College of Dentistry

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Hospital Family Dentistry .... 259
Operative Dentistry ........... 260
Oral and Maxillofacial Surgery . 260
Oral Pathology, Radiology, and Medicine .............. 261
Oral Science .................. 263
Orthodontics ................. 263
Pediatric Dentistry .......... 264
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Preventive and Community Dentistry ............... 265
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Dean: David C. Johnsen
Executive associate dean: Jed S. Hand
Associate dean, research and graduate studies:
Christopher Squier
Associate dean, student affairs and curriculum:
Yvonne Chalkley
Interim assistant dean, patient care: Ronald Elvers
Assistant dean, finance and facilities: Scott Arneson
Director, oral science: Christopher Squier
Degrees: B.S., D.D.S., M.S., Ph.D.
Web site: http://www.dentistry.uiowa.edu
The College of Dentistry is an integral part of The University of Iowa and its Health Sciences Center. Its mission, which embraces the University's academic values as well as the ethical responsibilities implicit in educating future members of a profession, rests on a foundation representing every aspect of collegiate activity: education of students as general practitioners and specialists; research into all aspects of oral and dental disease and the delivery of health care; and service to the community, the state, and the profession.

Faculty members, predoctoral students, and specialty residents provide oral health care to patients at clinics in the Dental Science Building, the Center for Disabilities and Development, and dentistry clinics at University of Iowa Hospitals and Clinics and Veterans Affairs Medical Center. Faculty, staff, and students participate in interdisciplinary research and training activities involving the University's five health science colleges as well as other University colleges and departments.

Founded in 1882, the college began as a single University department. In 1900 the University underwent general reorganization and the Dental Department became the College of Dentistry. In the 19th century, dentistry was taught at several locations in Iowa, but today the college is Iowa's only provider of dental education and ranks as a leader in dental education nationwide.

The college and its educational programs are accredited by the Commission on Dental Accreditation of the American Dental Association, an independent tripartite commission authorized and recognized by the Commission on Post-Secondary Education.

Programs offered by the college cover the full spectrum of dentistry and closely integrated fields. They include the Bachelor of Science in Oral Health Science program, a degree completion program for individuals holding an A.A.S. degree in dental hygiene; the Doctor of Dental Surgery program (D.D.S.), which prepares general dentists; advanced education programs in all dental specialties, each of which may lead to certification in a dental specialty; several advanced education programs in other areas of dentistry, including the oral science program, which offers M.S. and Ph.D. degrees; post-D.D.S. residency programs in general and hospital-based dentistry; and a wide variety of continuing education programs for the dental and allied professions.

**Predoctoral Program**

**Doctor of Dental Surgery**

The basic program leading to the Doctor of Dental Surgery (D.D.S.) consists of a minimum of three years of preprofessional study and four years of study in the College of Dentistry.

Course work during the first and second years of study integrates the basic sciences with preclinical and clinical disciplines. The basic sciences include gross anatomy, biochemistry, general histology, immunology, microbiology, pathology, pharmacology, and physiology. Students also study topics specific to dentistry, such as principles of occlusion, anesthesia and pain control, operative dentistry, facial growth and development, cariology, and preventive dentistry. During the latter part of the first year, students are introduced to their first clinical patient-treatment situation.

The second-year program continues the study of basic sciences and preclinical courses, with additional patient treatment experiences in restorative and preventive dentistry.

Third-year dental students rotate through a series of clerkships that expose them to seven clinical disciplines.

Fourth-year dental students deliver comprehensive dental care in conditions that closely approximate those in private dental practice. They also are exposed to various community dentistry health programs that include hospitals, mental health institutes, nursing homes, and the Special Care Clinic. They may participate in the Colorado Migrant Worker Program or the Foreign Dental School Exchange Program. The community dentistry programs provide exposure to facets of dentistry usually not observable in an academic setting.

**Basic Sciences in the Dental Curriculum**

The following science courses are offered by departments in colleges other than dentistry and are a required part of the dental curriculum.

- **000:101 Human Gross Anatomy for Dental Students** 6 s.h.
- **000:112 General Histology for Dental Students** 4 s.h.
- **051:111 Dental Microbiology** 3 s.h.
- **069:133 Introduction to Human Pathology** arr.
- **071:111 Pharmacology for Dental Students** 5 s.h.
- **072:152 Human Physiology for Dental Students** 4 s.h.
- **099:161 Biochemistry for Dental Students** 4 s.h.

College of Dentistry courses are listed under “Nondepartmental Courses” at the end of this section.

**Combined Liberal Arts and Sciences/Dentistry Program**

Students who are enrolled in a baccalaureate program at The University of Iowa may be allowed to include the first year of dentistry to complete their elective semester-hour requirement toward the bachelor's degree.

The provision for acceptance by the College of Liberal Arts and Sciences of 30 s.h. of elective credit earned in any other college of the University allows College of Dentistry students to obtain a bachelor's degree from the College of Liberal Arts and Sciences after successfully completing the freshman year in dentistry. To take advantage of this plan, students must fulfill all specific requirements for the bachelor's degree, including Core Curriculum Program requirements and the requirements for a major. Students also must satisfy the College of Liberal Arts and Sciences residence requirement before enrolling in the College of Dentistry. Contact the College of Liberal Arts and Sciences for more information.

**Academic Procedures**

**Promotions, Graduation**

Student promotions and graduation are determined by the collegiate academic and professional performance committee, which is made up of individuals appointed by the dean from the basic, preclinical, and clinical sciences and from other academic areas of the college. The performance committee may recommend to the dean that a student withdraw from the college or repeat specific courses when the student is deemed generally unprepared to be promoted or to enter the dental profession.

**Committee for Appeals**

When a student has been asked to withdraw from the college or wants special consideration of problems concerning promotion or graduation, he or she may appeal to the dean. All appeals are heard by an ad hoc committee appointed by the dean. The ad hoc committee investigates new information that has not been available previously or that has not been discussed as fully as the student feels it should have been. The committee determines whether this new information, or important new insights that may have been gained, could have influenced the collegiate academic and professional performance committee’s decision. The recommendation of the appeals committee is submitted to the dean for final action.

**Dentistry Licensing Examination**

Iowa, Colorado, Illinois, Kansas, Minnesota, Missouri, Nebraska, North and South Dakota, Washington, Wisconsin, and Wyoming belong to the Central Regional Dental Testing Service, which serves as the testing agency for clinical examinations for licensure in these states. Examinations are administered at several testing sites located at schools of dentistry within the region. Examination dates are determined by the Central Regional Dental Testing Service (CRDTS) and are available from its administrative secretary.

For a five-year period, member states, and participating states that recognize CRDTS results, accept successful completion of CRDTS requirements in lieu of their individual state’s clinical examination requirements. The license application is then filed with the individual state board of dentistry.

All states also require the National Boards, conducted by the American Dental Association, in lieu of individual state written examinations. A jurisprudence examination also is required in many states, including Iowa.

**Student Organizations**

All dental students are members of the American Student Dental Association through its local chapter. The American Dental Education
Association, the American Association of Dental Research, the American Association of Women Dentists, the American Society of Dentistry for Children, the American Society for Geriatric Dentistry, the Student National Dental Association, and the Hispanic Dental Association also have local chapters. Students who rank in the upper 12 percent of their senior class are eligible for election to Omicron Kappa Upsilon, a national scholastic honorary dental society. The national dental professional fraternities Delta Sigma Delta and Psi Omega have chapter houses at Iowa, and housing is available to male and female dental students. In addition, both fraternities provide academic and social activities for students and their spouses.

Expenses
The College of Dentistry maintains a Supply-Instrument Management System (SIMS), which provides students with instruments and supplies necessary throughout their dental training. The SIMS usage fee for the D.D.S. is payable in installments over the four-year program. A fee for expendable laboratory supplies is charged each of the first two years. A $100 breakage fee also must be deposited; the deposit is refundable upon graduation or termination of enrollment.

Admission
Applicants must submit a completed AADSAS (Associated American Dental Schools Application Service) application form to the American Dental Education Association. The AADSAS application may be completed online or downloaded and printed from the American Dental Education Association web site (http://www.adea.org). The association encourages electronic application.

Applications are accepted beginning June 1 of the year before the year of entry. Completed applications must be on file at ADEA by November 1. Applicants should apply as early as possible. Notifications of acceptance are sent beginning December 1.

Prospective dental students are encouraged to embark on an educational program that leads to a standard bachelor's degree. This ensures that students receive a well-rounded education.

Predental Studies
The basic academic requirement for admission to the College of Dentistry is completion of at least 90 s.h. of academic study at an accredited college. No more than 60 s.h. are accepted from a junior college or two-year institution. The predental program of study should include the following.

English: satisfactory accomplishment in English composition, rhetoric, and speech commensurate with the academic requirements for a bachelor's degree at the college attended.

Physics: one year (equivalent to 8 s.h.), of which one-fourth must be laboratory work.

Chemistry: two years (equivalent to 16 s.h.), of which one year (equivalent to 8 s.h.) must be in organic chemistry; one-fourth of each year's study must be laboratory work.

Biochemistry: highly recommended.

Biological science: one year (equivalent to 8 s.h.), which must include appropriate laboratory work; the requirement may be satisfied by a one-year course in principles of biology, with instruction in cell biology, metabolism, organismic biology, animal biology, genetics, development, ecology, and evolution; preference is given to applicants who have completed more than 8 s.h. Courses in human anatomy and cell physiology are strongly recommended.

Gross anatomy: highly recommended.

Electives: sufficient course work in the social sciences, philosophy, psychology, history, foreign languages, business, and mathematics to provide a well-rounded educational background.

Grade-Point Average Requirement
Applicants should have a cumulative g.p.a. of at least 2.50 on a 4.00 scale (a g.p.a. above 3.00 is preferred). The admissions committee gives special consideration to the quality of applicants' course work in the predental sciences, in addition to the cumulative grade-point average.

Interviews
Personal interviews are required of applicants for admission to the College of Dentistry. Applicants are contacted to arrange an interview, usually after the AADSAS application is received by the admissions office.

Required Dental Admission Test
All applicants must complete the Dental Admission Test (DAT) sponsored by the Council on Dental Education of the American Dental Association. A computerized DAT is available throughout the year at designated Prometric Centers.

Applicants are required to take the test by August 1, one year before entering dental school. Test application forms are available online (http://www.aoda.org); from the University's Office of Admissions; the College of Dentistry Office for Student Affairs; and the American Dental Association, 211 East Chicago Avenue, Chicago, Illinois 60611.

Deposit by Accepted Applicants
Applicants accepted before February 1 are required to submit a $500 deposit within 30 days after notification of admittance. Applicants admitted after February 1 must submit the deposit within two weeks after notification of admittance. This deposit is not refundable but is credited toward the first fee payment. Applicants who fail to make the deposit within the time specified forfeit their place in the entering class.

Additional Admission Considerations
Fulfillment of the specific requirements listed for admission does not ensure admission to the College of Dentistry. From applicants meeting minimum requirements, the admissions committee selects those who appear best qualified for the study and practice of dentistry. The committee considers applicants' academic averages, science averages, DAT scores, letters of recommendation, the interview, and other factors.

Early Admissions
The College of Dentistry has formal early admissions agreements with The University of Iowa; Buena Vista University in Storm Lake, Iowa; Cornell College in Mount Vernon, Luther College in Decorah, Wartburg College in Waverly, Iowa; Augustana College in Rock Island, Illinois; and Prairie View & M University in Prairie View, Texas.

The Deferred Admit Program (DAP) allows academically motivated students interested in a dental career to be admitted as early as the first year of their undergraduate college education while postponing matriculation to the College of Dentistry until they have completed at least three years of liberal arts and sciences education. During these three years, students are engaged in a liberal arts and sciences curriculum that incorporates the dental prerequisite courses. Once selected for the program, students must maintain a specified level of academic achievement to assure matriculation to the College of Dentistry.

Financial Support
Financial assistance for dental students is based on need. Dental students who demonstrate need are eligible for Health Professions Loans, Perkins Loans, and Stafford/Ford Loans. Students applying for loans must submit the Free Application for Federal Student Aid (FAFSA). Interest on many of these loans may be deferred while the student is in school, and the loans are repayable over an extended period of time after the course of study is completed.

Short-term and long-term loans are available through the financial aid coordinator at the College of Dentistry.

Research/Teaching Awards are given each year to qualified entering dental students. The Dental Research Awards and Resource Support Awards provide financial support up to $15,000 per year for as many as four years, if the student maintains an appropriate level of performance. Awardees are engaged in collaborative research with faculty mentors.

Financial assistance (grants and loans) is available to disadvantaged students who qualify under The University of Iowa's Educational Opportunity Program and the Opportunity at Iowa Program.

Information on financial assistance for dental students is available from the University's Office of Student Financial Aid.

Undergraduate Study
B.S. in Oral Health Science
The College of Dentistry's Bachelor of Science in oral health science is a degree completion program for students who hold an Associate in
College of Dental Hygiene

New generations of dentists to provide an educational environment—one that prepares students for clinical practice. These programs do not lead to an individual degree but serve as preparation for clinical specialty programs. Admission requirements are designed to accommodate the needs of returning adult students.

Admission
Applicants should have a cumulative g.p.a. of at least 2.50 on a 4.00 scale. They must apply for admission to the University and to the B.S. in oral health science program, and they must interview at the College of Dentistry. Official transcripts, including degrees conferred, from each college or university attended must be submitted along with the application to the University’s Office of Admissions. For more information about the B.S. in oral health science, contact the University’s Office of Admissions.

Graduate and Postgraduate Study
Programs of study leading to the Master of Science are offered by the Departments of Operative Dentistry, Orthodontics, and Preventive and Community Dentistry. Admission to these graduate programs requires satisfaction of all requirements for admission to the Graduation College, the Doctor of Dental Surgery degree or its equivalent (or for dental hygienists applying to the Department of Preventive and Community Dentistry, a bachelor’s degree), and departmental approval. Programs are described in the individual College of Dentistry departmental sections of the Catalog.

Departments also offer postgraduate programs designed as preparation for clinical specialty practice. These programs do not lead to an academic degree. A certificate is awarded upon satisfactory completion of the programs.

Faculty
Iowa’s dental faculty is predominantly full-time. In addition, 97 part-time adjunct faculty members assist with clinical teaching in the D.D.S. and advanced residency programs. Approximately 88 percent of the college’s faculty members hold D.D.S. or D.M.D. degrees and 12 percent represent other disciplines. The vast majority of faculty dentists have advanced education past the D.D.S., generally with master’s degrees in specialty areas; about one-fifth hold a Ph.D.

The College of Dentistry is committed to the principle that diversity is essential to a strong educational environment—one that prepares new generations of dentists to provide high-quality care to patients from many backgrounds. The college’s full-time faculty members reflect that commitment.

Facilities
The College of Dentistry is located in the Dental Science Building on the University of Iowa Health Sciences Campus, in proximity to the Roy J. and Lucille A. Carver College of Medicine, the College of Nursing, Pharmacy, and Public Health, and University of Iowa Hospitals and Clinics. The Bowen Science Building, and the Hardin Library for the Health Sciences also are nearby.

The south wing of the Dental Science Building is devoted to clinical teaching. There are 268 operators in departmental clinics, student laboratories, clinical research space, and a cafeteria. The north wing houses the simulation clinic and technique bench teaching laboratory, the electronic classroom, the college’s administrative offices, educational media service, computer support services, the academic Department of Preventive and Community Dentistry, and the research laboratories and faculty offices of the Dows Institute for Dental Research.

Education and Patient Care
Patient care is integral to dental education. Students and faculty members deliver oral health care in clinics on the health sciences campus and at several off-campus sites, including nursing homes. More than 25,000 people receive oral health care yearly in the college’s clinics. Patients from throughout Iowa as well as from western Illinois and northern Missouri account for most of the 110,000 patient visits each year.

Interdisciplinary Centers

Dows Institute for Dental Research
Established in 1976, the Dows Institute for Dental Research occupies the fourth floor of the Dental Science Building’s north wing. Laboratories are equipped to support a wide variety of research projects reflecting the complex nature of modern health care needs. Research in the area focuses on soft tissue and epidemiology, behavior, health policy, and outcomes; and biomaterials, bone, and tissue engineering. Research also is carried out at the Office of Clinical Research and the Dental Clinical Research Center.

Although research is concentrated in these program areas, one of the unit’s strengths has been the consistent level of interaction and collaboration among individuals and programs across the college and the University.

Dental Clinical Research Center
For nearly two decades, this center has offered the oral health care industry a multidisciplinary setting for product testing and development directed by experienced faculty scientists in laboratory or clinical settings. Center researchers have broad experience in designing tests of therapeutic claims and product safety that meet the criteria of the ADA’s Council on Scientific Affairs and the Food and Drug Administration Clinical Trials.

Center for Oral and Maxillofacial Implants
Through integrated research, education, and clinical programs, this center facilitates development and use of implants in dentistry as a therapeutic modality. The center integrates basic and clinical research with technology transfer to the clinical setting, enhancing predoctoral, postgraduate, and continuing education and expanding treatment options available to patients served by the college. The center also provides vital coordination of the various dental specialties participating in this treatment modality.

Nondepartmental Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>112:100</td>
<td>Transfer Credits Accepted</td>
<td>arr.</td>
</tr>
<tr>
<td>112:118</td>
<td>Experiential Learning I</td>
<td>arr.</td>
</tr>
<tr>
<td>112:119</td>
<td>Experiential Learning II</td>
<td>arr.</td>
</tr>
<tr>
<td>112:120</td>
<td>First-Year Continuing Session</td>
<td>arr.</td>
</tr>
<tr>
<td>112:145</td>
<td>Introduction to Geriatric Dentistry</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>112:150</td>
<td>Second-Year Continuing Session</td>
<td>arr.</td>
</tr>
<tr>
<td>112:155</td>
<td>Introduction to Comprehensive Care/Experiential Learning III</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>112:167</td>
<td>Introduction to Quality Assurance</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>112:168</td>
<td>Dental Therapeutics</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>112:170</td>
<td>Third-Year Continuing Session</td>
<td>arr.</td>
</tr>
<tr>
<td>112:180</td>
<td>Fourth-Year Lectures and Clinics</td>
<td>arr.</td>
</tr>
<tr>
<td>112:185</td>
<td>Clinical Admissions Emergency</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>112:186</td>
<td>Practice Management Lecture</td>
<td>1 s.h.</td>
</tr>
</tbody>
</table>
Ph.D. programs also gain in-depth knowledge in original research. Students in the M.S. and board examination process in order to function confidently as dental professionals. They develop clinical skills; gain knowledge of and experience in the educational aspects of endodontic treatment are emphasized. Students treat endodontic patients under direct supervision of faculty and staff.

**Graduate Programs**

The advanced programs offered by the Department of Endodontics are designed to provide qualified dentists with the scientific knowledge and clinical skills needed to practice endodontics and/or pursue a career in dental education and research.

The department offers several types of postdoctoral programs, which have similar clinical experiences but different didactic experiences. Each advanced program satisfies training requirements for eligibility for certification by the American Board of Endodontics. Students who complete the programs are encouraged to seek board certification. Various activities throughout the year, includingWind trekking, hiking, and rafting, are also offered.

The goal of each advanced program is to develop competent diagnosticians and clinicians. Students learn the scientific and clinical basis of endodontics; develop clinical skills; gain knowledge of and experience in the educational process in order to function confidently as dental educators; and develop skills in designing, conducting, reporting, and publishing the results of original research. Students in the M.S. and Ph.D. programs also gain in-depth knowledge in a scientific training discipline as preparation for an academic/research career.

**Master of Science**

The Master of Science requires a minimum of 30 s.h. of graduate-level work, taken over 36 months. An original research project and thesis are also required. Students follow a plan of study outlined by the Department of Endodontics in compliance with basic Graduate College regulations for graduate programs in dentistry. Under most circumstances, the degree granted is a Master of Science in oral sciences, although master's degrees are available in other disciplines. Following successful completion of the program requirements, students are granted a Master of Science degree and a certificate in endodontics.

**Certificate**

The certificate program requires a minimum of 24 months of full-time formal training. The program has the same clinical but fewer didactic course requirements than the combined M.S./certificate program, and it requires no formal thesis. Students are expected to complete an original research project in the area of endodontics and to write a scientific paper for submission to a refereed journal.

**Other Graduate Programs**

Other graduate programs are available, such as a certificate in endodontics and to write a scientific paper for submission to a refereed journal.

**Graduate Program Policies**

**Grade-Point Average**

Students in each advanced program must maintain a g.p.a. of at least 3.00 to receive the certificate and/or degree. Students who fall below this average are allowed one semester to raise their g.p.a. to at least 3.00. The circumstances of the grade-point average deficiency receive careful consideration.

**Dental Practice Privileges**

Students accepted and enrolled in any advanced program are not permitted to involve themselves in private dental practice enterprises outside the college. Failure to adhere to this policy may result in dismissal from the program.

**Program Interruption**

Whenever possible, students should complete the advanced program without interruption. Students who demonstrate need to discontinue the program temporarily should limit their time away from the educational process to a maximum of one calendar year. Students must have permission from the endodontic graduate program director in order to interrupt their study.

**Admission**

Application for the M.S. and certificate programs are accepted from both U.S. and international graduates (or from those about to graduate). Applicants for either the M.S. or certificate programs must be graduates of (or graduating from) an accredited college of dentistry or a foreign equivalent. M.S. and Ph.D. candidates must comply with the requirements for admission to the Graduate College. A cumulative g.p.a. of at least 2.50 or equivalent is necessary for consideration for any of the advanced programs.

**Application**

For the certificate and combined M.S./certificate programs, application forms are available from and should be returned to the Graduate College, c/o the Graduate Admissions Office. Applications are forwarded to the Department of Endodontics. For the Ph.D. program, application forms and additional information are available from and should be returned to the office of the dean for research in the College of Dentistry. Applications are forwarded to the Department of Endodontics. Applications for all programs must include the completed application form, official transcripts from all undergraduate and graduate institutions attended, three letters of recommendation, National Board Examination Scores (at least Part I, and Part II if available), an updated curriculum vitae, a personal statement, and a recent photograph.

Applicants to the master of science program are required to take the Graduate Record Examination, which may be completed during the first semester of enrollment. All international applicants whose native language is not English must pass the Test of English as a Foreign Language (TOEFL) in order to be admitted to the Graduate College or the College of Dentistry as an advanced education student in endodontics.

**APPLICATION DEADLINE**

All advanced programs begin on July 1. Applications should be submitted no later than September 1 of the year preceding the anticipated date of enrollment. Finalists for each program are asked for a personal interview in October or early November. Final decisions generally are made before the last week of November.

**Financial Support**

Applicants to the M.S. and certificate programs must be able to support themselves financially until they complete the program. Besides living expenses, prospective students should plan on expenses for tuition, books, specialized equipment (e.g., surgical operating microscope, notebook computer, and ultrasonic system), instrument usage, and thesis costs. Stipends are determined on a yearly basis and depend on availability of funding.
Courses

For Predoctoral Students

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>083:140</td>
<td>Endodontics Preclinical Didactic</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>083:141</td>
<td>Endodontics Preclinical Laboratory</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>083:160</td>
<td>Clinical Endodontic Practice</td>
<td>arr.</td>
</tr>
<tr>
<td>083:165</td>
<td>Clinical Endodontic Seminar</td>
<td>1 s.h.</td>
</tr>
</tbody>
</table>

For Graduate Students

Also see courses listed under the Oral Sciences Program.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>083:200</td>
<td>Update in Endodontics</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>083:225</td>
<td>Endodontic Literature Review I</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>083:226</td>
<td>Endodontic Literature Review II</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>083:227</td>
<td>Endodontic Literature Review III</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>083:228</td>
<td>Endodontic Literature Review IV</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>083:240</td>
<td>Endodontic Case Review/Surgery Conference</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>083:251</td>
<td>Seminar in Endodontics I</td>
<td>1-2 s.h.</td>
</tr>
<tr>
<td>083:252</td>
<td>Seminar in Endodontics III</td>
<td>1-2 s.h.</td>
</tr>
<tr>
<td>083:253</td>
<td>Seminar in Endodontics IV</td>
<td>1-2 s.h.</td>
</tr>
<tr>
<td>083:255</td>
<td>Practice Teaching in Endodontics</td>
<td>arr.</td>
</tr>
<tr>
<td>083:300</td>
<td>Endodontic Certificate Program</td>
<td>0 s.h.</td>
</tr>
</tbody>
</table>

Predoctoral Program

The Department of Family Dentistry introduces senior dental students to a comprehensive approach for managing the oral health care needs of patients. The senior year integrates basic science knowledge, clinical skills, and dental laboratory experiences acquired during the first three years of dental school into a systematic approach to providing care.

Students who complete their education in Family Dentistry:
- understand the principles of comprehensive dental treatment planning;
- know the medical, ethical, and legal issues involved in patient care;
- are able to recognize the need for specialty consultation;
- are competent in coordinating and sequencing patient treatments;
- are effective members of the dental team;
- are prepared to enter general practice;
- are educated and have had appropriate training for the licensure examination; and
- appreciate the importance and value of lifelong learning.

Students spend five days a week in a clinical setting, where they gain experience in total patient management and care. Their didactic course work builds on their previous education. All areas of clinical and didactic instruction, patient awareness, and sensitivity to patients’ needs are stressed.

The department’s practice management curriculum prepares students to evaluate practice locations as well as manage the business aspects of a dental practice.

Postgraduate Program

The Department of Family Dentistry sponsors the Advanced Education in General Dentistry Program (AEGD). This postgraduate program’s objectives are to improve and refine residents’ skills and knowledge in the practice of general dentistry and to develop general practitioners who can plan and deliver high-quality dental services. AEGD practitioners are better able to plan and coordinate complete treatment for complex patient care and to act as principal coordinators when specialists’ services are necessary.

Residents are exposed to a broad range of clinical experiences while delivering comprehensive care to an assigned group of patients, who are treated solely by the residents. They have the opportunity to discuss treatment planning, progress, and outcome with other residents and faculty. They also are involved with financial management, auxiliary management, and appointment planning, thus adding to their practice management skills.

Approximately 85 percent of the program consists of general dental practice. Patient assignments are made to assure broad experience in type and complexity of treatment needs. The didactic portion constitutes approximately 15 percent of the total experience and consists of seminars by discipline-trained faculty in all specialty areas. Dental emergency responsibilities are included in the program, as are pretreatment, midtreatment, and posttreatment case presentations. Journal clubs help residents become familiar with current literature and research.

The AEGD program lasts one year and carries a stipend. Applicants to the program must be graduates of accredited U.S. or Canadian dental schools. Further information is available from the Department of Family Dentistry. Applications should be received no later than October 15 for admission the following July 1.

Courses

For Predoctoral Students

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>114:184</td>
<td>Advanced DAU</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>114:187</td>
<td>Family Dentistry Clinic I</td>
<td>arr.</td>
</tr>
<tr>
<td>114:188</td>
<td>Family Dentistry Clinic II</td>
<td>arr.</td>
</tr>
<tr>
<td>114:194</td>
<td>Topics in Family Dentistry</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>114:195</td>
<td>Treatment Planning and Sequencing</td>
<td>2 s.h.</td>
</tr>
</tbody>
</table>

For Graduate Students

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>114:300</td>
<td>Advanced Education in General Dentistry Residency</td>
<td>0 s.h.</td>
</tr>
</tbody>
</table>

HOSPITAL FAMILY DENTISTRY

Head: Kirk L. Fridrich
Division directors: Kirk L. Fridrich (Oral and Maxillofacial Surgery), Stephen J. Goepfert (Pediatric Dentistry), Jeffery Mark (Prosthodontics), Patricia K. Meredith (Family Dentistry), James Wheeler (Orthodontics)


Associate professors: Janet M. Guthmiller, William T. Johnson, Michael J. Kanelis, Patricia K. Meredith, William J. Synan, Karen Varga


Interim head: John V. Doering

Professors: Ana Diaz-Arnold, John V. Doering, James M. Lewis

Professors emeriti: Charles Sabiston Jr., Vincent D. Williams, Gene A. Zach

Visiting associate professor: Steven H. Cooper
Assistant professors: James T. Dunne Jr., Thomas L. Peek

Web site: http://www.dentistry.uiowa.edu
Residency Program

The residency program in general practice prepares dentists for a broader scope of private practice in general dentistry. The program combines clinical and didactic training on an individual basis and meets fundamental requirements of the Commission on Dental Accreditation of the American Dental Association.

The residency covers one year of hospital-based training. Through postdoctoral clinical, didactic, and hospital experience, residents prepare to meet the oral health needs of a wide range of ambulatory and nonambulatory patients. Residency training includes use of hospital resources, management of ambulatory patients, inpatients, same-day surgery patients, and emergency medical and dental patients. Residents participate in consultations with other hospital services and are assigned to appropriate hospital services to fulfill the objectives of the training program. They are appointed to the house staff of the hospital and have the same privileges and responsibilities as residents in other professional education programs.

Applicants must be graduates of an accredited college of dentistry and must be licensed to practice dentistry in the United States. Selection is made through a postdoctoral dental matching program sponsored by the American Dental Education Association.

The application deadline is November 1 for admission the following July 1. Applicants are appointed after the results of the match have been received and the staff takes official action.

For Graduate Students

Discipline Studies


082:225 Operative Dentistry Seminar I 1 s.h. Basic concepts of cavity preparation, material placement.

082:226 Operative Dentistry Seminar II 1 s.h. Direct restorations; bonding technology; their use in dental esthetic treatment.

082:227 Operative Dentistry Seminar III 1 s.h. Use of indirect techniques in bonded esthetic restorations.

082:228 Operative Dentistry Seminar IV 1 s.h. Principles for health professions educators.

Research Program

082:230 Operative Dentistry Research I 3 s.h. Thesis topic selection, committee selection, literature review.

082:231 Operative Dentistry Research II 2 s.h. Thesis protocol, research.

082:232 Operative Dentistry Research III 3 s.h. Thesis research, data gathering, writing.

082:233 Operative Dentistry Research IV 3 s.h. Thesis preparation, defense.


Clinical Studies


082:241 Operative Dentistry Advanced Clinic II arr. Patient treatment in operative clinic, basic operative procedures.


082:245 Clinical Demonstrating arr. Teaching undergraduate dental students in laboratory, clinic.

082:300 Operative Dentistry Certificate Program 0 s.h. Advanced dental clinical, didactic education; nondegree program toward eligibility for board certification in operative dentistry.
couples with surgical skills, that will enable students to diagnose and manage surgical problems related to the practice of general dentistry. Emphasis is placed on reinforcing high ethical standards and developing good surgical concepts and judgment.

The clinical portion of the curriculum allows students to develop surgical skills and apply the theoretical knowledge acquired in the didactic courses. The theory and application of anesthesia, analgesia, intravenous sedation, and nitrous oxide analgesia techniques are presented through didactic and clinical experiences.

Graduate Programs

Residency Program

The residency program in oral and maxillofacial surgery combines clinical and didactic training to prepare dentists for specialty practice. Every effort is made to adapt the program to the individual interests, abilities, and development of students, but it is essential that all students meet certain fundamental requirements.

The recommendations of the Council on Dental Education of the American Dental Association, the Committee on Graduate Training of the American Society of Oral and Maxillofacial Surgeons, and the American Board of Oral and Maxillofacial Surgery have been considered carefully in planning the structure and scope of training.

The residency period covers four years of hospital training, providing an orientation to hospital procedures, integration of basic and clinical sciences, acquisition of the principles of surgery, and familiarization with the various aspects of health services.

Competence in oral and maxillofacial surgery requires knowledge of the basic medical sciences related to the specialty. Therefore, in addition to hospital and clinical training, residents take advanced course work in subjects such as applied pharmacology, surgical anatomy, pathology, physiology, and microbiology. They also review closely related disciplines such as roentgenology, anesthesia, physical diagnosis, and laboratory procedures.

The assumption of increased responsibility and the opportunity for clinical and operating room experience are important aspects of residency training.

Residents gain clinical training in anesthesiology through an assigned rotation in the Department of Anesthesiology. Previous advanced training in physical diagnosis, physiology, pharmacology, and pathology take on greater clinical significance, and increased responsibility in the operating room as first assistant and surgeon further develops surgical judgment and skills.

Development and implementation of a research project under staff supervision enhance the value of the residency training.

Senior residents may be given responsibility for major oral and maxillofacial surgical cases during rotations at University of Iowa Hospitals and Clinics and at the Veterans Affairs Medical Center. Each fourth-year resident is assigned to a rotation as a clinical and didactic coordinator and assumes responsibility to qualify for examination by the American Board of Oral and Maxillofacial Surgery.

Master of Science

Requirements for the M.S. are completed during residency. The M.S. program is a four-year course of integrated didactic and clinical study, including a research project and preparation of a thesis.

Admission

Students may begin the full four-year program only on July 1. The application deadline in oral and maxillofacial surgery is September 1 for admission the following July 1.

Applicants must take the Graduate Record Examination (GRE) General Test, must have graduated from an accredited college of dentistry, must be licensed to practice dentistry in the United States, and should be in the upper one-third of their graduating class.

Documents required include application for graduate oral and maxillofacial surgery; an applicant appraisal form from the applicant’s references; transcripts; and letters of recommendation from the dean of the dental college from which the applicant graduated and from two professional references.

Applicants are selected through a postdoctoral dental matching program sponsored by the American Association of Oral and Maxillofacial Surgeons. Appointments are made after the match results are revealed and the staff elects to take official action. All appointments should be tendered on or before February 1 prior to the July 1 effective date.

The Office of Graduate and Professional College Admissions sends admission forms to applicants. The forms must be completed for the Graduate College by March 1.

Facilities

The University of Iowa Health Sciences Campus has outstanding basic and clinical science departments that stimulate and support scholarly research and superior clinical practice. The facilities of University of Iowa Hospitals and Clinics, the Veterans Affairs Medical Center, the College of Dentistry, and the Roy J. and Lucille A. Carver College of Medicine provide an appropriate environment for residency training in oral and maxillofacial surgery.

Courses

For Predoctoral Students

**087:115 Anesthesia and Pain Control I** 1 s.h.
Principles, techniques of complete medical history, head and neck examination, cardiovascular and respiratory examination; neuroanatomical, psychophysiological aspects of pain; pharmacologic action and techniques for using local anesthetics.

**087:130 Basic Oral and Maxillofacial Surgery** 2 s.h.
Principles, indications, contraindications for extractions; evaluation of patient’s related medical history; techniques of extraction, minor oral surgery procedures.

**087:145 Anesthesia and Pain Control II** 1 s.h.
Theory, application, instrumentation of nitrous oxide sedation, emphasis on cardiovascular, respiratory physiology, evaluation of patients, practical techniques for nitrous oxide sedation.

**087:155 Advanced Oral and Maxillofacial Surgery** 1 s.h.
History, examination, diagnosis, treatment of diseases and traumatic injuries of oral cavity.

**087:160 Clinical Oral and Maxillofacial Surgery** 3 s.h.
Clinical experience at the College of Dentistry, University of Iowa Hospitals and Clinics, Veterans Affairs Medical Center.

For Graduate Students

**087:201 Hospital Procedures** 1 s.h.
Hospital rules, regulations, patients, department records; information concerning hospitalized patients.

**087:202 Basic Science Review** 4 s.h.
Head, neck anatomy; dissection, bacteriology, pathology.

**087:207 Surgical Anatomy** 1 s.h.
Head, neck structures in major oral surgery procedures; emphasis on maxillofacial problems, surgical emergencies; may include animal surgery.

**087:208 Pain and Anxiety Control** 1-3 s.h.
Nitrous oxide, intravenous, oral, intramuscular anxiety and pain control; pharmacology of agents, complications, their management.

**087:209 Principles of Anesthesia** 2 s.h.
General anesthesia; agents and their effects on respiratory, cardiovascular systems, literature.

**087:211 Literature Seminars and Journal Club** 1 s.h.

**087:212 Surgical Case Reports** 1 s.h.

**087:214 Roentgen Interpretation** 2 s.h.
Theory, technique.

**087:215 Physical Diagnosis** 2 s.h.

**087:218 Oral Pathology Conference** 1 s.h.
Current clinical specimen.

**087:225 Oral and Maxillofacial Surgery Seminar I** 1 s.h.

**087:226 Oral and Maxillofacial Surgery Seminar II** 1 s.h.

**087:227 Oral and Maxillofacial Surgery Seminar III** 1 s.h.

**087:230 Oral and Maxillofacial Surgery Research I** 2 s.h.
Thesis topic and review committee selection, literature review.

**087:231 Oral and Maxillofacial Surgery Research II** 3 s.h.
Thesis protocol, research.

**087:232 Oral and Maxillofacial Surgery Research III** 3 s.h.
Thesis research complete; data gathering.

**087:233 Advanced Oral and Maxillofacial Surgery** 1 s.h.
Specialty and technical seminars, patient treatment, clinical practice on assigned patient problems.

**087:240 Clinical Oral and Maxillofacial Surgery I** 3 s.h.
Specialty and technical seminars, patient treatment, clinical practice on assigned patient problems.

**087:241 Clinical Oral and Maxillofacial Surgery II** 3 s.h.
Predoctoral Program

The department teaches dental and other health care students about diseases that manifest in and about the oral cavity. Students learn about the clinical, radiographic, laboratory, histopathologic, and therapeutic features of these diseases as well as their etiology and natural history. They also study identification of systemic diseases through physical evaluation of patients.

Graduate Programs

Master of Science

Stomatology is the science of structure, function, and disease of the oral cavity. Study methods include examination of related histories, evaluation of clinical signs and symptoms, and use of biochemical, microscopic, and radiologic procedures to establish a diagnosis and a plan for therapeutic management.

The postdoctoral programs are diverse and flexible, emphasizing oral and maxillofacial pathology, and oral and maxillofacial radiology. Two educational tracks, emphasizing oral and maxillofacial pathology or oral and maxillofacial radiology, allow postdoctoral students to obtain advanced clinical, didactic, and research-related education while pursuing a Master of Science degree in stomatology.

Students also may choose to apply for acceptance into the college’s graduate degree programs in oral science (see “Oral Science” in the Catalog).

Oral and Maxillofacial Pathology Emphasis

MASTER OF SCIENCE

Dental school graduates seeking the M.S. in stomatology with oral and maxillofacial pathology emphasis pursue comprehensive study of basic and health sciences in preparation for teaching and research. A minimum of 30 s.h. of satisfactory graduate credit is required. Candidates for the M.S. prepare and submit a thesis based on the results of research conducted during their course of study.

CERTIFICATE AND MASTER OF SCIENCE

The certificate in oral and maxillofacial radiology and M.S. in stomatology with oral and maxillofacial radiology emphasis combines the minimum requirements of the certificate and master’s degree programs. Completion time usually is 36 to 48 months. The educational requirements of the certificate program in oral and maxillofacial pathology meet the requirements for the preparation of dental specialists set forth by the Commission on Dental Education of the American Dental Association and the American Board of Oral and Maxillofacial Pathology.

Oral and Maxillofacial Radiology Emphasis

MASTER OF SCIENCE

Dental school graduates seeking the M.S. in stomatology with oral and maxillofacial radiology emphasis pursue comprehensive study of basic and health sciences in preparation for teaching and research. A minimum of 30 s.h. of satisfactory graduate credit is required. Candidates for the M.S. prepare and submit a thesis based on the results of research conducted during their course of study.

CERTIFICATE AND MASTER OF SCIENCE

The certificate in oral and maxillofacial radiology and M.S. in stomatology with oral and maxillofacial radiology emphasis combines the minimum requirements of the certificate and master’s degree programs. Completion time usually is 36 to 48 months. The educational requirements of the certificate program in oral and maxillofacial radiology meet the requirements for the preparation of dental specialists set forth by the Commission on Dental Education of the American Dental Association and the American Board of Oral and Maxillofacial Radiology.

Program of Study

Students in all four programs must complete the core courses and the basic science and departmental courses appropriate to their track (“Additional Courses”).

CORE COURSES

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>064:199</td>
<td>Basic Oral Radiology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>064:204</td>
<td>General and Systemic Pathology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>086:200</td>
<td>Stomatology Literature Review</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>086:226</td>
<td>Physical, Laboratory, and Historical Features of Disease</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>086:230</td>
<td>Research in Oral Pathology, Radiology, and Medicine</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>086:242</td>
<td>Clinical Oral and Maxillofacial Radiology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>111:202</td>
<td>Research Protocol Seminar</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>111:212</td>
<td>Statistical Methods for Dental Research</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>151:210</td>
<td>Dental Sciences Research Methodology</td>
<td>2 s.h.</td>
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</tbody>
</table>

ADDITIONAL COURSES

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>086:225</td>
<td>Manifestations of Oral and Paraoral Disease</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>086:227</td>
<td>Surgical Oral Pathology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>086:240</td>
<td>Histopathology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>086:241</td>
<td>Hospital Oral Pathology, Radiology, and Medicine</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>151:220</td>
<td>Pathophysiology of Skin and Oral Mucosa</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>151:230</td>
<td>Pathophysiology of Salivary Glands and Saliva</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>151:275</td>
<td>Oral Microbiology and Immunology</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>151:280</td>
<td>Advanced Dental Therapeutics</td>
<td>2 s.h.</td>
</tr>
</tbody>
</table>

Admission

Applicants must have successfully completed an accredited program leading to the D.D.S. or D.M.D., or a foreign equivalent, and must qualify for admission to the University of Iowa Graduate College. They must have a cumulative g.p.a. of at least 3.00 (or foreign equivalent) to be considered for admission.

All applicants must take the Graduate Record Examination (GRE) General Test. International students whose first language is not English must present evidence of satisfactory performance on the Test of English as a Foreign Language (TOEFL).

Facilities

The graduate department has joint-use laboratory facilities reserved for the Department of Oral Pathology, Radiology, and Medicine to include a radiology special procedures area, an interpretation room, seminar rooms, a surgical oral pathology laboratory, and a clinical pathology laboratory.

In addition, the College of Dentistry has joint-use research laboratories that are well-equipped and staffed for conducting research involving histology, histochemistry, materials technology, radiobiology, ultrastructure, and electron probe analysis and quantification.

Courses

For Predoctoral Students

<table>
<thead>
<tr>
<th>Course Number</th>
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<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>086:120</td>
<td>Fundamentals of Oral Radiology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>086:135</td>
<td>Oral Pathology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>086:145</td>
<td>Introduction to Clinical Oral Radiology</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>086:155</td>
<td>Systemic Disease Manifestations</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>086:160</td>
<td>Clinical Oral Diagnosis</td>
<td>1 s.h.</td>
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</table>

For Graduate Students

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>069:200</td>
<td>General and Systemic Pathology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>069:202</td>
<td>Pathologic Anatomy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>086:204</td>
<td>Stomatology Literature Review</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>086:226</td>
<td>Physical, Laboratory, and Historical Features of Disease</td>
<td>3 s.h.</td>
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<td>086:230</td>
<td>Research in Oral Pathology, Radiology, and Medicine</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>086:242</td>
<td>Clinical Oral and Maxillofacial Radiology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>111:202</td>
<td>Research Protocol Seminar</td>
<td>2 s.h.</td>
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<td>Statistical Methods for Dental Research</td>
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</tr>
<tr>
<td>151:210</td>
<td>Dental Sciences Research Methodology</td>
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</tr>
</tbody>
</table>

For Doctoral Students

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>086:120</td>
<td>Fundamentals of Oral Radiology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>086:135</td>
<td>Oral Pathology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>086:145</td>
<td>Introduction to Clinical Oral Radiology</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>086:155</td>
<td>Systemic Disease Manifestations</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>086:160</td>
<td>Clinical Oral Diagnosis</td>
<td>1 s.h.</td>
</tr>
</tbody>
</table>

Making and processing intraoral, extraoral radiographs; principles and methods; clinical case analysis.

151:275 Oral Microbiology and Immunology | 2 s.h. |
151:280 Advanced Dental Therapeutics | 1 s.h. |
Oral and Maxillofacial Radiology Track
077:103 Radiation Biology | 4 s.h. |
077:211 Medical Physics | 4 s.h. |
077:308 Research: Special Topics | arr. |
086:244 Technical Oral and Maxillofacial Radiology | arr. |
086:245 Head and Neck Radiology | arr. |
For Graduate Students

086:200 Stomatology Literature Review 1 s.h.
New articles from a variety of health care journals.

086:225 Manifestations of Oral and Paranasal Disease 1 s.h.
Clinical experience in diagnosing, managing patients.

086:220 Physical, Laboratory, and Historical Features of Disease 1 s.h.
Head and neck diseases, abnormalities.

086:227 Surgical Oral Pathology 1 s.h.
Experience in day-to-day operations of surgical oral pathology laboratory; advanced training in histopathologic diagnosis of oral and maxillofacial diseases. Repeatable. Prerequisite: consent of instructor. 086-240.

086:228 Introduction to Surgical Oral Pathology 1 s.h.
Day-to-day operations of surgical oral pathology laboratory; histopathologic diagnosis of oral and maxillofacial diseases. Repeatable. Prerequisite: consent of instructor.

086:230 Research in Oral Pathology, Radiology, and Medicine 1 s.h.
Includes thesis preparation.

086:238 Introduction to Histopathology 1 s.h.
Case studies; histopathologic diagnosis of diseases that affect oral and maxillofacial region. Repeatable. Prerequisite: consent of instructor.

086:240 Histopathology 1 s.h.
Case studies; advanced training in histopathologic diagnosis of diseases that affect oral and maxillofacial region. Repeatable. Prerequisite: consent of instructor; 086-200.

086:241 Hospital Oral Pathology, Radiology, and Medicine 1 s.h.
Management of patient consultations, diagnosis, therapy at a hospital-based dental service.

086:242 Clinical Oral and Maxillofacial Radiology 1 s.h.
Radiologic manifestations of diseases; emphasis on cranial facial complex.

086:243 Practical Oral and Maxillofacial Radiology 1 s.h.
Clinic participation; supervision of dental and dental hygiene students, review of their cases; participation in clinical radiology conferences, laboratory exercises.

086:244 Technical Oral and Maxillofacial Radiology 1 s.h.
Experience with technical maintenance of darken, clinical equipment; troubleshooting under supervision of radiology staff.

086:245 Head and Neck Radiology 1 s.h.
Hospital-based rotation in diagnostic radiology with participation in interpretation sessions; CT, MRI, nuclear medicine, ultrasound.

086:246 Craniofacial Radiology 1 s.h.
Hospital-based rotation in diagnostic radiology; exposure to interpretive sessions on ultrasound, CT, MRI, nuclear medicine.

086:250 Advanced Oral Pathology 1 s.h.
Diseases involving oral facial organs; emphasis on bibliographic research, biodynamic analysis of pathologic processes, diagnostic interpretation; content adapted to student interests. Prerequisite: consent of instructor.

086:300 Oral Pathology Certificate Program 0 s.h.
Advanced dental clinical and didactic education; nondegree program toward eligibility for board certification in oral and maxillofacial pathology.

086:301 Oral Radiology Certificate Program 0 s.h.
Advanced dental clinical, didactic education; nondegree program toward eligibility for board certification in oral and maxillofacial radiology.

ORAL SCIENCE

Director: Christopher Squier
Graduate degrees: M.S., Ph.D. in Oral Science
Web site: http://www.dentistry.uiowa.edu

Graduate Programs

The College of Dentistry offers programs of study leading to the Master of Science and the Doctor of Philosophy in oral science. Both programs require that students complete courses from a core curriculum and conduct independent research leading to a thesis. They are intended to equip graduates for a career in teaching and research.

Master of Science

The M.S. is awarded upon satisfactory completion of 30 s.h. of graduate work, including independent research leading to a dissertation, and a final examination. It is anticipated that candidates will complete the program in two years of full-time residence. M.S. candidates also involved in an advanced clinical program of two years' duration should complete the M.S. program by the end of a third year of study.

Students pursuing the M.S. also must be enrolled in a clinical training program of a College of Dentistry department.

Doctor of Philosophy

The Ph.D. is awarded upon completion of advanced course work and original research that culminates in successful defense of a dissertation. Candidates must earn a minimum of 72 s.h. of graduate credit, pass a comprehensive examination, prepare and gain approval of a research prospectus, and complete and successfully defend a dissertation that describes the results of the research. Candidates usually require at least four years of full-time residence to complete the program.

Admission

Applicants to the M.S. and Ph.D. programs must hold a dental degree and should have a cumulative g.p.a. of at least 3.00; they must take the Graduate Record Examination (GRE) General Test with a combined score of at least 1600 for all three components (verbal, quantitative, and analytical) and a score of at least 500 for any individual component. These requirements are not absolute, but they carry considerable weight in the admission process. Students whose first language is not English must earn a score of 550 (paper-based) or 213 (computer-based) or higher on the Test of English as a Foreign Language (TOEFL); candidates also may be asked to take the Test of Spoken English. Programs normally begin July 1 each year.

Applicants to the Ph.D. program are asked to submit a statement describing past research experience and current research interests, and stating how completion of the Ph.D. program fits into their career goals.

A personal interview may be requested for both the M.S. and Ph.D. programs.

Courses

151:200 Seminars in Dental Research 1 s.h.
151:210 Dental Sciences Research Methodology 2 s.h.
Practical, experimental procedures in dental research, literature and design, writing of research protocols.

151:215 Research Design in Dentistry 2 s.h.
Types of studies used in dentistry; design validity; sampling methodologies; major descriptive and experimental designs used in dental research; application of statistical tests to these designs.

151:220 Pathophysiology of Skin and Oral Mucosa 2 s.h.
Biologic of skin, oral mucosa; changes in behavior of the tissues in a variety of physiological, pathological conditions. Offered fall semesters of odd years. Prerequisite: 151:210.

151:230 Pathophysiology of Salivary Glands and Saliva 2 s.h.
Biochemistry, structure, function of glands; their secretions in health and disease, their role in oral environment. Offered spring semesters of odd years. Prerequisite: 151:210.

151:250 Current Concepts of Cariology 2 s.h.
Etiology of dental caries; pathogenesis, development of preventive measures. Offered spring semesters of odd years. Prerequisite: 151:210.

151:260 Bone and Tooth Support Structure and Implants 2 s.h.
Bone biology and periodontal structures; biologic basis for therapeutic use of dental implants.

151:275 Oral Microbiology and Immunology 2 s.h.
Principles of microbiology and immunology, aspects of microbial community development in the oral cavity, basic concepts of host/parasite interactions related to development of oral diseases; biologic, immunological, and clinical manifestations induced by major oral pathogens. Recommended: microbiology, biochemistry, and biology. Recommended: Immunology.

151:280 Advanced Dental Therapeutics 1 s.h.
Antimicrobial, analgesic, related therapies; emphasis on drug/drug interactions, dental implications of chronic cardiovascular and central nervous system medications. Offered fall semesters.

151:290 Strategies for Teaching Problem-Solving 2 s.h.
Design of large and small group instruction for critical thinking skills; evaluation of student performance.

151:600 Research in Oral Science 1 s.h.
Thesis research. Prerequisite: candidate for M.S. or Ph.D. in oral science.

ORTHODONTICS

Head: Thomas E. Southard
Professors: Samir E. Bishara, John S. Caiko, Karin A. Southard, Thomas E. Southard, Robert N. Staley
Professors emeriti: Richard M. Jacobs, William Olin
Associate professor: Andrew C. Lidral
Graduate degree: M.S. in Orthodontics
Graduate nondegree program: certificate in Orthodontics
Web site: http://www.dentistry.uiowa.edu

Predoctoral Program

The purpose of the predoctoral program in orthodontics is to enable the general practitioner of dentistry to recognize, diagnose, and treat with competence limited malocclusions of the teeth. Lecture courses guide the student in learning basic concepts of dental and facial growth, as well as treatment-oriented subject matter. In a laboratory course, diagnostic records are taken and evaluated and treatment appliances are
fabricated. The department supervises a volunteer program for clinical treatment of selected patients.

**Graduate Program**

The overall goal of the graduate program in orthodontics is to educate competent individuals to practice orthodontics and dentofacial orthopedics. The program's objectives are to provide students with an in-depth education in biological and biomechanical principles related to orthodontics; to teach students to diagnose, plan, and deliver comprehensive orthodontic health care service; and to develop students’ research and service skills.

Satisfactory completion of a 24-month period of intensive study, including lecture courses, seminars, clinical practicum, and a research paper, qualifies students for the certificate in orthodontics. If students satisfactorily complete a thesis based on an original research project, they qualify for an M.S. degree in addition to the certificate.

Opportunities are available for research and independent study in the department, and there are special facilities for research in biomechanics and craniofacial growth. Interaction with other departments provides learning and research opportunities in surgical orthodontics, cleft lip and palate treatment, speech pathology, animal experimentation, and human growth.

**Admission**

Admission requires a D.D.S. or equivalent and satisfaction of Graduate College requirements. Application deadline is September 1 for entry the following July 1. Applicants are required to come to the University for interviews with department faculty.

**Courses**

**For Predoctoral Students**

**089:115 Growth and Development** 1 s.h. Normal human growth and development; emphasis on craniofacial region.

**089:135 Orthodontic Laboratory** 1 s.h. Limited case diagnosis and treatment.

**089:136 Orthodontic Treatment** 1 s.h. From patient management to use of appliances for correcting some malocclusions in the general practitioner’s office.

**089:170 Orthodontic Clinic** unr. Experience in diagnosis, treatment planning implementation; work with patients who have malocclusions for treatment by undergraduate students; record taking; diagnosis and treatment; may include appointments during summer months.

**For Graduate Students**

**089:200 Control Theory and Craniofacial Morphogenetic Systems** 1 s.h.

**089:201 Orthodontic Theory: Diagnosis and Treatment Plan** 2 s.h. Diagnosis, treatment planning implementation.

**089:202 Diagnosis and Treatment Planning** 2 s.h. Literature concerning orthodontic diagnosis; treatment of particular problems; case histories of patients treated in graduate clinic.

**089:203 Advanced Orthodontic Technique** unr. Skills for treatment of developing malocclusions; use of edge for biomechanical therapy; laboratory focus on tipodont exercises.

**089:204 Biomechanics** unr. Theories, processes; use of accepted facial growth concepts in treatment of individuals with malocclusions during active growth period.

**089:207 Case Analysis** unr. Literature on diagnosis, treatment of mixed dentition patients; case histories of patients treated by serial extraction procedure.


**089:210 Orthodontic Seminar** unr. Evaluation, discussion, criticism, defense of diagnostic and treatment approaches to orthodontic cases that need, are undergoing, or have completed orthodontic treatment.

**089:211 Problems: Orthodontics** unr. Case histories of patients treated by serial extraction procedure.

**089:212 Research: Orthodontics** unr. Literature concerning orthodontic diagnosis; treatment of mixed dentition patients; case histories of patients treated by serial extraction procedure.

**089:221 Surgical Orthodontic Seminar** 1 s.h. Evaluation, discussion, criticism, defense of diagnostic and treatment approaches to orthodontic cases that need, are undergoing, or have completed surgical-orthodontic treatment.

**089:401 Seminar: Maxillofacial Rehabilitation** 1 s.h.

**Graduate Program**

Graduate study in pediatric dentistry leads to a certificate (two-year program) or a certificate and a Master of Science in dental public health (three-year program). Both programs give special emphasis to preparation for certification by the American Board of Pediatric Dentistry. In addition, the three-year program in dental public health prepares students for certification by The American Board of Dental Public Health. Both programs are fully accredited by the Commission on Dental Accreditation of the American Dental Association.

Students are trained in all phases of pediatric dentistry and have career choices in practice, education, or research. Special emphasis is placed on development of leadership skills and strategies for serving vulnerable populations.

Approximately 50 percent of the program is devoted to advanced clinical activity, 30 percent to didactic courses and practice teaching, and 20 percent to original research. The program includes a core of didactic, clinical, and research-oriented courses supplemented by electives determined by students’ individual interests. Development of a minor subject area is recommended.

Close associations with the Department of Pediatrics in the Roy J. and Lucille A. Carver College of Medicine and with the Center for Disabilities and Development and University of Iowa Hospitals and Clinics permit emphasis on oral rehabilitation under general anesthesia, instruction in physical diagnosis, and management of children with developmental disabilities.

**Admission**

Students apply through the American Dental Education Association PASS program.

**Financial Support**

Stipend support for residents in the three-year program is available to qualified students through a grant from the Office for Maternal and Child Health, Bureau of Community Health Services, Department of Health and Human Services. Stipend support for the two-year program is provided by other federal sources.

**Research Opportunities**

Clinical and laboratory research projects are in progress, with financial support from federal agencies and other sources. Significant contributions have been made in the areas of cariology, dental materials, dentistry for persons with special health care needs, growth and development, fluoride therapy, child behavior management, prevention, and access to care.
Faculty
Faculty members hold numerous national and state offices, committee memberships, consultancies, and honors in professional organizations. They serve as reviewers for professional journals and federal granting agencies. They also participate regularly in continuing education programs for dentists and other health science personnel. Eight of the department’s professors are diplomates of the American Board of Pediatric Dentistry.

Courses
For Predoctoral Students

092:140 Pediatric Dentistry Diagnosis and Treatment 3 s.h.
Growth and development; behavior management; diagnostic preventive-restorative techniques for pediatric patients.

092:165 Clinical Pediatric Dentistry 1 s.h.
Comprehensive clinical management of pediatric patients.

092:165 Clinical Seminar in Pediatric Dentistry 1 s.h.
Patient management, case histories, treatment philosophies, issues in contemporary dentistry for children.

For Graduate Students

092:230 Social, Cultural, and Public Health Issues in Pediatric Dentistry 1 s.h.
Advanced dental clinical and didactic education; nondegree program toward eligibility for board certification in pediatric dentistry.

092:300 Pediatric Dentistry Certificate Program 0 s.h.
Advanced dental clinical and didactic education; nondegree program toward eligibility for board certification in pediatric dentistry.

Periodontics

Head: Georgia K. Johnson
Professors: Georgia K. Johnson, Phillip A. Lainson, Glenn Maze
Professors emeriti: William R. Grigsby, Frank J. Kohout, William C. Rubright
Associate professors: Janet M. Guthmiller, Benny F. Hawkins
Associate professor emeritus: Paul J. Collins
Assistant professor: Ali Paktry
Adjunct clinical assistant professors: Guy Biek, James Filli, Shawn Reese, Frank A. Wingrove
Visiting assistant professors: Steven H. Cooper, Pornpim Pramratanachai
Assistant-in-instruction: Nancy A. Slach
Graduate degree: M.S. in Oral Science
Graduate nondegree program: certificate in Periodontology
Web site: http://www.dentistry.uiowa.edu

Predoctoral Program
The predoctoral periodontal program combines didactic, laboratory, and clinical experience and applies the biological concepts of periodontology to the comprehensive clinical management of patients who have periodontal diseases.

Graduate Programs

Master of Science
The Master of Science program in oral science is available in conjunction with the certificate program in periodontics.

The program requires satisfactory completion of required elective course work, preparation and defense of an acceptable thesis based on original research, and satisfactory completion of comprehensive written and oral examinations.

Completion of the program requires a minimum of 36 calendar months of full-time study.

Certificate
The certificate program provides a sound foundation for the clinical practice of periodontics. The program meets all requirements of the American Board of Periodontology for advanced dental education programs in periodontics. It meets eligibility requirements for certification by the American Board of Periodontology.

Completion of the program requires 36 calendar months of full-time study, including satisfactory completion of required and elective courses, satisfactory completion of comprehensive written and oral examinations, and an acceptable literature review or research paper.

Opportunities are provided for experience in clinical and basic research.

Admission
Admission to graduate study in periodontics requires the D.D.S. or its equivalent and satisfaction of Graduate College admission requirements (see the Graduate College section of the Catalog). National Dental Board Examination scores, if available, are required. Interviews are encouraged but not mandatory.

Financial Support
Applicants must be financially prepared to undertake uninterrupted studies.

Facilities
The department has 20 modern, well-equipped operatories devoted exclusively to periodontics. Hospital experience is available to students in the nearby University of Iowa Hospitals and Clinics and the Veterans Affairs Medical Center.

Research facilities include: lecture rooms, microscopes, biomaterials, quantitation, tissue culture, molecular biology and biochemistry, and microbiology, as well as animal facilities. Research facilities are in addition to those available by arrangement with University of Iowa Hospitals and Clinics, Eckstein Medical Research Building, Medical Laboratories, and the Veterans Affairs Medical Center.

Courses
For Predoctoral Students

092:140 Periodontic Methods I 2 s.h.
Normal periodontium, gingivitis, periodontitis, diagnosis, prognosis, treatment planning.

092:141 Periodontic Methods II 1 s.h.
Initial phase of periodontal therapy; treatment of acute periodontal problems, overview of surgical procedures.

092:160 Periodontics 4-6 s.h.
Comprehensive clinical management of periodontal patient.

092:165 Periodontology 1-2 s.h.
Comprehensive concepts of periodontology; clinical management of patients.

For Graduate Students

092:207 Practice Teaching in Periodontics 1 s.h.
Experience in lecturing, directing seminars, clinical teaching.

092:208 Recent Advances in Periodontics 1 s.h.
Differential diagnosis, histopathology of oral lesions often encountered in clinical practice.

092:212 Applied Oral Microbiology 1 s.h.
Microbiology applied to oral health problems.

092:225 Periodontology Literature Review I 1 s.h.

092:226 Periodontology Literature Review II 1 s.h.

092:227 Periodontology Literature Review III 1 s.h.

092:228 Periodontology Literature Review IV 1 s.h.

092:300 Periodontic Certificate Program 0 s.h.
Advanced dental clinical and didactic education; nondegree program toward eligibility for board certification in periodontics.

Preventive and Community Dentistry • College of Dentistry 265

Preventive and Community Dentistry

Head: Raymond A. Kuby
Professors: Peter C. Damiano, Deborah V. Dawson, Jed S. Hand, Raymond A. Kuby, Steven M. Levy, Elaine M. Smith
Professors emeriti: Henrietta L. Logan, Nelson S. Logan
Adjunct professor: Rhys B. Jones
Associate professors: Jane M. Chalmers, Marsha A. Cunningham, Kay D. Mescher, John J. Warren, Derek H. Willard
Associate professors emeriti: Howard M. Field, Hermine McLaran, Lawrence C. Peterson, Roger Simpson
Clinical associate professors: Howard J. Cowen, Jamie Sharp
Adjunct assistant professor: Fang Chan
Clinical assistant professors: Yung-Shen Huang, Teresa A. Marshall, Helen Sharp
Visiting assistant professor: John Wells
Adjunct lecturer: Betsy Momany
Graduate degree: M.S. in Dental Public Health
Web site: http://www.dentistry.uiowa.edu

Predoctoral Program
Programs in preventive, community, and geriatric dentistry are designed to increase students’ awareness of preventive dental practices, aspects of dental practices affected by community factors, and care of compromised adult patients.

Community dentistry programs give students opportunities to interact with health care teams and the public in Iowa and worldwide. The department conducts off-site community programs statewide, nationwide, and worldwide. It also operates the Special Care Clinic, which is housed in the Dental Science Building.

Using the community dentistry programs as the classroom, students observe and participate in a variety of activities that nurture their awareness of the societal obligations they must assume in order to practice effectively.
Graduate Program

The Master of Science program prepares dentists and dental hygienists to be specialists in dental public health. It has a research emphasis and requires a research project culminating in the completion and defense of a thesis.

The program, designed to be completed in two academic years of full-time study, requires a minimum of 40 s.h. of course work. Successful dentist graduates meet the educational requirements for eligibility for the certifying examination of the American Board of Dental Public Health.

Courses

For Predoctoral Students

111:116 Fundamentals of Clinical Dentistry 1 s.h.
Identification of health and disease in the mouth; practical methods of disease control, philosophy of preventive dentistry; patient assessment, clinical diagnosis.

111:117 Cariology and Preventive Therapies 2 s.h.
Multifactorial etiology of dental caries; support data for use of fluorides, sealants, antimicrobials, and plaque control mechanisms in control, prevention of caries. Prerequisite: 111:116.

111:118 Preventive Dentistry, Communication, and Patient Care 3 s.h.
Patient oral assessment, communication, patient management skills; oral hygiene instruction for collegiate recall patients; skills in instrumentation for detection, removal of calculus deposits. Prerequisite: 111:117.

111:145 Clinical Preventive Dentistry 0, 2 s.h.
Experience providing complete prophylaxis and preventive services for college patients; development of communication skills in a clinic setting. Prerequisite: 111:118.

111:160 The Practice of Dentistry in the Community I 1-2 s.h.
Dental public health, history of dentistry, dental personnel, organized dentistry, professional issues, evaluation of scientific research.

111:161 The Practice of Dentistry in the Community II 1-2 s.h.
Factors that affect profession, practice of dentistry: legal and malpractice issues, supply and demand, types and practice organization, financing and quality of care.

111:185 Broadlawns Medical Center arr.
Experience providing dental care to low-income patients in a metropolitan hospital-based clinic; community-related assignments, on-call assignments in hospital, emergency department; student team experience in Des Moines.

111:186 Colorado Migrant Program arr.
Experience providing primary dental care and outreach services to a migrant population, broad understanding of needs, resources for migrant, low-socioeconomic populations.

111:187 Community Health Care: Davenport arr.
Experience providing dental care at medical-dental ambulatory health care facility serving Scott County, eight-operative dental clinic.

Experience providing clinical and outreach services for low-income children and adults with developmental disabilities at St. Luke's Hospital, Cedar Rapids; operative and behavioral dental problems, hospital protocol, special needs of low-socioeconomic clients.

111:189 Special Care Program arr.
Experience providing dental care to physically and medically compromised adult patients; use of portable dental equipment to care for nursing home residents.

111:191 Private Practice Preceptorship arr.
Development of skills and knowledge necessary for day-to-day practice of dentistry; experience at selected preceptor sites in Iowa.

111:193 Veterans Administration Medical Center: Knoxville arr.
Experience providing dental care to inpatient and outpatient veterans in a 400-bed neuropsychiatric and geriatric hospital; observation of other hospital departments, such as physical therapy, rehabilitative medicine, psychiatry.

111:194 Special Field Clinic arr.
Extramural experiences developed according to student needs, extramural opportunities. Prerequisite: department approval.

For Graduate Students

111:200 Introduction to Dental Public Health 2 s.h.
Science, philosophy, practice of dental public health.

111:201 Literature Review Methods: Dental Public Health 2 s.h.
Concepts and process of literature review, particularly in area of student's interest.

111:202 Research Protocol Seminar 2 s.h.
Development of a master's thesis protocol; identification of thesis topic, review of relevant literature, outline of potential research methods.

111:203 Independent Study: Dental Public Health arr.
Prerequisite: approval of faculty supervisor.

111:204 Principles of Oral Epidemiology arr.
Retrospective, prospective, cohort study designs; validity and reliability; distribution and determinants of oral diseases—caries, periodontal diseases, oral cancer, malocclusion, fluorosis, HIV infection.

111:205 Administration of Public Dental Programs 2 s.h.
Application of general management concepts, practical aspects of planning, financing, staffing, implementing, operating, evaluating dental public health programs at federal, state, local levels.

111:206 Preventive Programs in Dental Public Health 2 s.h.
Prevention, control methods for major dental conditions, primarily dental caries, periodontal diseases; clinical efficacy, cost-effectiveness; development of comprehensive preventive oral health plan for a community.

111:208 Field Experience in Dental Public Health arr.
Arranged with public and voluntary health agencies according to students' and agencies' needs.

Protocol preparation; data collection, analysis, organization; writing, defense of research.

111:212 Statistical Methods for Dental Research 3 s.h.
Descriptive methods, elementary probability, distributions, populations and samples, methods for analyzing percentage data and paired and unpaired measurement data, regression, correlation and analysis of variance.

111:214 Dental Care Policy and Financing 2 s.h.
Dental financing and policy issues; payment mechanisms for health care services providers, third-party prepayment plans, salaried and public-funded programs, Medicaid and Medicare programs, dental insurance systems, and care of underinsured.

111:215 Introduction to Statistical Computing 2 s.h.
Use of statistical packages on a personal computer for data management and analysis.

111:217 Teaching Methods and Evaluation 2 s.h.
Philosophies of dental education, teaching methodologies, evaluation; focus on learning to write educational objectives, writing and analyzing exam items.

Predoctoral Program

The predoctoral program provides students with the basic principles, practices, and concepts of prosthodontics required for the practice of general dentistry, through laboratory projects and treatment of patients with differing prosthodontic needs.

Graduate Programs

The department offers Master of Science and certificate programs. The primary purpose of the M.S. program is to train and prepare dentists for careers in prosthodontic education and/or research. The certificate program is designed primarily for individuals who want to prepare themselves for private practice in prosthodontics. Both programs are 34 months in length and satisfy the educational requirements for eligibility for the American Board of Prosthodontics examination.

Master of Science

Students who wish to pursue a Master of Science degree enroll in the M.S. program in oral science through the Graduate College. They must meet all the requirements for the master's degree as outlined in the Manual of Rules and Regulations of the Graduate College. Students complete a core curriculum, which includes basic sciences, research methodology, and a thesis based on the student's original research, with the aid of an adviser and thesis committee. In addition, students are required to satisfactorily complete an oral and/or written examination on the thesis and on prosthodontics.

Certificate

The certificate program may provide more clinical experience than the M.S. program and does not require a thesis. Students must complete a core curriculum, which includes basic sciences, research methodology, and clinical practice—fixed, removable, maxillofacial, implant prosthodontics, and occlusion.
Admission

Minimum requirements for admission to both programs correspond to the minimum requirements for admission to the Graduate College. In addition, applicants must hold a D.D.S. or D.M.D. or a foreign equivalent. An interview may be requested. Both programs last a minimum of 34 months and usually begin July 1. Application deadline is September 1.

Courses

For Predoctoral Students

084:122 Principles of Occlusion 2 s.h.
Basic principles of form and function of the stomatognathic system, in both static and dynamic states; background and theory required for participation in the course's laboratory phase; anatomy, maxillomandibular relationships, dynamics of mandibular movement, equilibration of the dentition, biomaterials and their properties, introduction to temporomandibular joint disorders.

084:140 Fixed Prosthodontic Lecture I 2 s.h.
Basic biomechanical principles of fixed prosthodontics; metal, single-unit, multiple-unit fixed prostheses; diagnosis and treatment planning for the partially edentulous patient, including occlusion and esthetic concerns.

084:141 Fixed Prosthodontic Patient Simulation I 2 s.h.
Laboratory exercises in fabrication of single-unit metal, provisional restorations; preparations for fabrication of a three-unit fixed partial denture.

084:142 Fixed Prosthodontic Lecture II 2 s.h.
Basic biomechanical principles of fixed prosthodontics; multiple-unit fixed prostheses, porcelain-fused-to-metal fixed prostheses; student diagnosis and treatment planning for the partially edentulous patient, including occlusion and esthetic concerns.

084:143 Fixed Prosthodontic Patient Simulation II 3 s.h.
Laboratory exercises in fabrication of a three-unit fixed partial denture and porcelain-fused-to-metal crown; provisional restorations for posterior and anterior teeth.

084:144 Removable Prosthodontic Technique Lecture 3 s.h.
Technical procedures for fabrication of complete and removable partial dentures; definitions, materials, and techniques for construction of removable prostheses; diagnosis and treatment planning necessary for the partially and totally edentulous patient to receive a removable prosthesis.

084:145 Removable Prosthodontic Technique Laboratory 3 s.h.
Laboratory exercises in fabrication of complete and removable partial dentures, implant overdenture radiographic and surgical guides, surveyed fixed prostheses.

084:160 Prosthodontic Clinic arr.
Experience supplemented by individual supervision, demonstration.

084:165 Prosthodontic Seminar 2 s.h.
Knowledge in biological, basic sciences and technique applied to clinical fixed and removable prosthodontics procedures.

For Graduate Students

084:220 Fixed Prosthodontics Literature Review I 1 s.h.
Fixed prosthodontic procedures; assigned readings, discussion of related research.

084:221 Fixed Prosthodontics Literature Review II 1 s.h.
Porcelain-fused-to-metal and ceramic restorations, color science and esthetics; assigned readings, discussion of related research.

084:222 Implant Literature Review 1 s.h.
Implant prosthodontics; assigned readings, discussion of related research.

084:223 Occlusion Seminar 1 s.h.
Occlusion and the temporomandibular system; assigned readings and discussion of related research.

084:224 Graduate Restorative Materials 2 s.h.
Dental materials science: mechanical, physical, and chemical properties of restorative materials; selection and manipulation. Same as 082:224.

084:225 Complete Denture Literature Review 1 s.h.
Complete denture prosthodontics; assigned readings, discussion of related research.

084:226 RPD Literature Review 1 s.h.
Removable partial denture prosthodontics; assigned readings, discussion of related research.

084:231 Thesis Preparation: Prosthodontics 3 s.h.
Thesis preparation, defense.

084:300 Prosthodontic Certificate Program 0 s.h.
Advanced dental clinical, didactic education; nondegree program toward eligibility for board certification in prosthodontics.
College of Education

Dean: Sandra Bowman Damico
Associate deans: Carolyn Colvin, James D. Marshall
Director, Belin-Blank Center for Gifted Education: Nicholas Colangelo
Director, Educational Placement Office: Rebecca Anthony
Director, Iowa Testing Programs: Timothy Ansley
Degrees: B.A., B.S. (undergraduate degrees granted through College of Liberal Arts and Sciences); M.A.T., M.A., M.S., Ed.S., Ph.D.
Web site: http://www.education.uiowa.edu
The nation’s first university-level professorial chair in education was established at The University of Iowa in 1872. The department became the School of Education in 1907; and the College of Education, structured largely as it is today, was founded in 1913. Since then, the college’s growth has mirrored the growth of the University.

Over the years, College of Education faculty members have been leaders in a variety of educational fields. Particularly noteworthy have been their contributions in the fields of educational testing and measurement. These contributions helped lay the foundation for today’s testing and measurement industry, making Iowa City one of the best-known centers for this educational specialty.

The college has four divisions: counseling, rehabilitation, and student development; curriculum and instruction; educational policy and leadership studies; and psychological and quantitative foundations.

**Teacher Education Programs**

The College of Education at The University of Iowa offers two major teacher preparation programs based on baccalaureate degrees. Elementary education is a College of Liberal Arts and Sciences major leading to either a Bachelor of Arts or a Bachelor of Science degree. The secondary education programs combine a specific liberal arts and sciences academic major with teacher preparation course work leading to a Bachelor of Arts or a Bachelor of Science degree.

The college also provides numerous specialized elementary (including early childhood) and secondary teaching endorsement programs.

Preparation for special education teaching is offered primarily at the graduate level. In addition, a new undergraduate multicategorical resource program is available for elementary education students admitted to this program. A limited number of undergraduate special education courses are open to all students who are interested in this area, to those from other Teacher Education Programs, and to those planning to pursue graduate degrees in special education.

Undergraduate students admitted to a Teacher Education Program (TEP) must complete all College of Liberal Arts and Sciences General Education Program requirements for the Bachelor of Arts or Bachelor of Science. The quantitative or formal reasoning component must be satisfied with a college-level mathematics course.

For more information on Teacher Education Programs, contact the Office of Teacher Education and Student Services.

**Undergraduate Admission to Teacher Education Programs**

Undergraduate applicants to The University of Iowa who wish to become teachers indicate their interest in the elementary major or a specific secondary-level teaching endorsement program on their application for admission. This results in an “Elementary Interest” (TEP) or a “Secondary Interest” (7SP) notation on the student’s official records. Eligible transfer students are automatically sent TEP application materials from the Office of Admissions when they are admitted to the University. All others must obtain application materials from the Office of Teacher Education and Student Services in the College of Education.

**Application Deadlines**

Application deadlines for all Teacher Education Programs are as follows: March 15 for the following summer session and fall semester; June 15 for the following fall semester; and October 15 for the following spring semester. Late applications are not accepted.

**General Requirements**

Admission to Teacher Education Programs is competitive. Admission requirements may vary by program area. Faculty members in each program area review and select students to be admitted to their program. In order to be considered for admission to a Teacher Education Program, an undergraduate student must satisfy the following:

- admission to The University of Iowa;
- attainment of sophomore standing (30 s.h. completed) before making application to the Teacher Education Program;
- a g.p.a. of at least 2.70 on all college course work as well as course work completed at The University of Iowa;
- application for admission to a Teacher Education Program;
- submission of Praxis I test scores that meet the minimum score requirements; and
- verification of having completed a 10-hour voluntary experience in a K-12 regular classroom setting.

**Honors in Education**

The College of Education Honors Opportunities Program is open to juniors and seniors who have maintained a g.p.a. of at least 3.50. Students with lower grade-point averages who have demonstrated research potential may be accepted on the basis of an interview with the education honors director. Honors Opportunities Program students must take 07X:100 Honors Seminar in Education and 07X:101 Senior Honors Project. Successful completion of the program results in an honors designation on the diploma. The Honors Opportunities Program is housed in and administered by the Connie Belin and Jacqueline N. Blank International Center for Gifted Education and Talent Development.

**Postbaccalaureate or Graduate Admission**

Students who have completed a baccalaureate degree may be admitted to a teacher preparation program in one of two ways. They may apply to the Graduate College and state their objective as “certification only,” or they may apply for a master's degree objective, either a Master of Arts in Teaching (M.A.T.), or in selected majors, a Master of Arts (M.A.). Students who choose to pursue a graduate-level teacher preparation program must satisfy the following:

- admission to the Graduate College;
- completion of the Graduate Record Examination (GRE) General Test, with scores that meet the minimum score requirements; a cumulative g.p.a. of at least 3.00 on undergraduate work;
- admission to a specific certification program (e.g., elementary education, special education, or secondary English); and
- verification of 10 hours of voluntary experience in a K-12 regular classroom setting.

Students may apply to the College of Liberal Arts and Sciences as postbaccalaureate students with senior standing. Students who choose this option must apply to the appropriate Teacher Education Program, following the undergraduate admissions procedure, and must meet the general requirements stated in the undergraduate admissions section.

Application deadlines for graduate and postbaccalaureate students with senior standing are March 15, June 15, and October 15. Graduate and postbaccalaureate students must submit Graduate Record Exam (GRE) General Test scores instead of PRAXIS I scores.

**Student Teaching**

The final phase of the Teacher Education Program is the professional semester, devoted to supervised student teaching and directed observation in a variety of situations. Faculty members, professional staff, and advanced graduate students who are experienced teachers serve as supervisors. Usually, the ratio of student teachers to full-time equivalent supervisors is 15 (or fewer)-to-1.

Periodic seminars provide for discussion and evaluation of student teachers’ experiences. The student teaching requirement may not be met by transfer credit except under unusual circumstances and with advance approval.

To be admitted to the student teaching semester, students must submit a separate application to the Office of Teacher Education and Student Services in the College of Education. Applications are submitted during the calendar year before the student teaching semester. The deadline is November 15 for students planning to student teach the following fall semester and February 15 for students planning to student teach the following spring semester.

Admission to student teaching requires program area faculty approval as well as verification of satisfactory progress in meeting both College of Education standards and program area standards, which are set at the time of admission to the TEP and in some programs are higher than the college’s required g.p.a. of at least 2.70. Students should consult with their advisers regarding specific requirements for the program areas.
Waivers

Students who have completed courses that they want to substitute for program requirements should consult with their advisers.

Urban Student Teaching

Students who want to advance their educational interests through student teaching in an urban setting may apply through the Office of Student Field Experiences. The urban districts include Clark County, Nevada (Las Vegas area); Chicago Public Schools; Adams County School District 14 (Denver area); Aldine, Texas (Houston area); and Rialto, California (Los Angeles area). These options are open to all education majors who meet the requirements established for these student teaching sites. For more information about this and other programs, consult the Office of Student Field Experiences.

International Student Teaching

International student teaching experiences are available primarily through the Foundation for International Education. Sites include Australia; Costa Rica; England and Wales; Bagalore, India; Ireland; New Zealand; Scotland; and Taiwan. In most locations, students are assisted with housing by the on-site coordinator. Interested students must meet the regular requirements for student teaching and must have the approval of their adviser and the appropriate program coordinator. International assignments are for seven to eight weeks. Secondary education students complete an eight-week assignment in a state-side placement followed by an eight-week assignment in an international placement. Secondary education students in some program areas (for instance, English education) are required to complete a full semester of student teaching in the United States before student teaching at an international site. Elementary education students complete a two-week classroom management course followed by a seven-week assignment in a state-side placement and a seven-week assignment in an international placement. For more information about international student teaching opportunities, consult the Office of Teacher Education and Student Services.

State Requirements

All students seeking an Iowa teaching license must complete a course in human relations and mainstreaming the exceptional learner. These requirements can be met by completing 07B:8180 Human Relations for the Classroom Teacher and 07U:100 Foundations of Special Education. Human relations courses offered through community colleges are not accepted. In the state of Iowa, applicants must be at least 21 years old to be granted a teaching license. Applicants who have been found guilty of a felony are barred from receiving an Iowa teaching license. Appeals may be filed directly with the Board of Educational Examiners.

Teacher Education Minor

Acceptance into a Teacher Education Program is prerequisite to registration for most College of Education undergraduate courses. However, the College of Education offers one minor in educational psychology for students who wish to be better informed about education. The minor may help support students’ future career objectives and help students prepare to be better informed as parents, as taxpayers, or as future members of local boards of education. Contact the Office of Teacher Education and Student Services for more information about the minor.

Teacher Licensure/ Certification Services

The Iowa Board of Educational Examiners issues teacher, support service, and administrator licenses on the recommendation of Iowa colleges and universities whose programs have been approved by the Iowa Department of Education. All University of Iowa preparation programs have Iowa Department of Education approval. Licensure/certification requirements across the nation are subject to change. Students who plan to seek employment in a state other than Iowa should make every effort to be informed about current requirements in that state. Many states require some type of competency testing. Generally, students who apply out-of-state should first secure Iowa licensure.

To be recommended by The University of Iowa, applicants must complete all requirements of the appropriate approved program. A minimum of 20 s.h. of course work applied to meet program requirements must be earned at The University of Iowa. Fingerprinting is required for all new applicants for Iowa licensure; the state of Iowa has outlined specific procedures for the fingerprinting process.

The College of Education Office of Teacher Education and Student Services provides Iowa application forms, fingerprinting procedures, and licensure/certification assistance to all students completing approved programs offered by the college. Assistance also is provided to individuals interested in adding endorsements to their Iowa license based on completion of State of Iowa minimum licensure requirements.

Graduate Programs

Graduate study in the College of Education is guided by the general regulations of the Graduate College (consult the Manual of Rules and Regulations of the Graduate College), with additional requirements set by College of Education faculty members. Graduate students in education register in the Graduate College and receive their degrees from that college. Graduate programs are available in the following areas of study.

Counseling, Rehabilitation, and Student Development

M.A., Ph.D.

Counselor Education—Ph.D.
Rehabilitation Counseling—M.A., Ph.D.
School Counseling—M.A.
Student Affairs Administration and Research—Ph.D.
Student Development in Postsecondary Education—M.A., Ph.D.

Curriculum and Instruction

M.A.T., M.A., M.S., Ph.D.

Art Education—Ph.D.
Curriculum and Supervision—M.A., Ph.D.
Developmental Reading—M.A.
Early Childhood Education—M.A.
Elementary Education—M.A., Ph.D.
Elementary Science Education—M.S.
English Education—M.A.T., M.A.
Foreign Language Education—M.A.T., M.A.
Foreign Language and English as a Second Language—Ph.D.
Language, Literacy, and Culture—Ph.D.
Mathematics Education—M.A., Ph.D.
Science Education—M.S., M.A.T., Ph.D.
Social Studies Education—M.A., Ph.D.
Special Education—M.A., Ph.D.

Educational Policy and Leadership Studies

M.A., Ed.S., Ph.D.

Educational Administration—M.A., Ed.S., Ph.D.
Higher Education—M.A., Ed.S., Ph.D.
Social Foundations of Education—M.A., Ph.D.
Special Education Administration—Ed.S.
Student Affairs Administration and Research—Ph.D.

Psychological and Quantitative Foundations

M.A., Ed.S., Ph.D.

Counseling Psychology—Ph.D.
Educational Measurement and Statistics—M.A., Ph.D.
Educational Psychology—M.A., Ph.D.
Instructional Design and Technology—M.A., Ph.D.
School Psychology—Ed.S., Ph.D.

Master of Arts in Teaching

The M.A.T. program is designed for academically superior liberal arts and sciences graduates who completed few or no professional education courses in their undergraduate program. It is a nonthesis program with requirements that range from 45 to 67 s.h. See “Curriculum and Instruction” in the Catalog.

The program leads to a master’s degree and licensure as a secondary teacher in the fields of English, foreign languages, and science education. Admission to the program requires a g.p.a. of at least 3.00 in undergraduate course work. Requirements include 18 s.h. of graduate course work in the student’s teaching field. A minimum of 20 s.h. of graduate work in education must be taken to satisfy licensure requirements.

A Master of Arts program with a social studies education major leads to initial teacher licensure. See “M.A. in Social Studies Education,” “Program B Requirements,” in the Curriculum and Instruction section of the Catalog.

Master of Arts

The College of Education offers a Master of Arts with or without thesis. The nonthesis program usually provides more specialized course work than does the thesis program. Although the nonthesis program is not necessarily a terminal program, students who expect to continue their studies in a doctoral program are urged to select
the M.A. thesis program since it offers more experience in research procedures. Students who complete a nonthesis M.A. and are admitted to a Ph.D. program may be asked to submit evidence of writing and research skills to their advisor or division during the early part of their doctoral program. For information about which programs offer a thesis option, see the program descriptions in this section of the Catalog.

Course credits earned more than 10 years before the session in which the degree is to be conferred do not count toward fulfillment of requirements for any master's degree. Of the minimum semester hours required for the degree, at least 24 must be earned in University of Iowa courses after formal admission to the program, and at least 8 must be completed on campus.

**Master of Science**

Thesis and nonthesis programs are available for students in science education. The degree requirements are similar to those for the Master of Arts.

**Specialist in Education**

This degree is granted upon completion of a prescribed two-year postbaccalaureate program designed for students preparing themselves for professional work in fields such as administration and supervision, and special services. Of the minimum 60 s.h. required for the degree, 28 must be in the area of specialization; the rest may be earned in cognate fields, supervised experience, research, and elective courses. The research must culminate in a written report.

Other requirements and regulations for the Ed.S. are the same as for the master's degree, except that the Ed.S. requires students to complete 15 s.h. of resident work on campus in one 12-month period or in two summer sessions. Also, course work completed 10 years before the final examination must be evaluated to determine the amount of credit that may be accepted toward fulfillment of program requirements.

**Doctor of Philosophy**

The Ph.D. is the highest academic degree. It is conferred upon students who have demonstrated superior scholarship and mastery of research skills in course work as well as in the preparation and defense of a dissertation.

**Professional Improvement**

Students are admitted to professional improvement status in a division rather than to degree candidacy. This option is appropriate only for persons who wish to update their knowledge or who are temporarily undecided about career plans. Students should file a change of status stating a specific program objective at the earliest opportunity.

**Extramural Education**

Through the Division of Continuing Education, selected College of Education courses are offered at off-campus sites and hours outside the traditional schedule. If taken after formal admission to a specific program, some of these courses may be applied to meet residency requirements for degrees.

Special regulations govern such course work. Students should obtain prior approval from their program adviser before registering in extramural courses. Students not regularly admitted to The University of Iowa also may register in extramural courses, but credit earned before admission does not count toward residency requirements.

**Support Units, Special Resources**

**Teacher Education and Student Services**

The Office of Teacher Education and Student Services assists students, faculty, staff, and the general public in matters of graduate and undergraduate admissions, Graduate College examinations, student field experiences, and teacher licensure/certification. It also serves as a liaison with other University units, including the Graduate College, the College of Liberal Arts and Sciences, the Office of Admissions, and the Office of the Registrar, and with external agencies, including the Iowa Department of Education, out-of-state teacher licensure/certification departments, and school district personnel in Iowa and outside of the state.

A variety of application and informational materials are available at the office and on the office's web site (click “Centers and Services” on the College of Education home page).

**Education Technology Center**

The Education Technology Center (ETC) provides computer services to College of Education faculty, staff, and students. The ETC offers technical assistance to faculty and staff and maintains all computers in the college. Students use ETC lab facilities to work on assignments and to conduct research. The Education Instructional Technology Center encompasses four student computer labs, three of which are suitable for a classroom environment.

The Education Technology Center provides a variety of application software and World Wide Web and multimedia production tools. Faculty, staff, and students may check out digital cameras, computer projectors, wireless laptops, and other AV equipment. The ETC also provides assistive technologies for College of Education students with disabilities.

The ETC’s ePortfolio Support Center guides faculty and students on the creation of electronic portfolios. Center staff consult with faculty on identifying and linking classroom work to adopted College of Education standards. They also help students produce and upload compliant web-based ePortfolios.

The ETC partners with the University’s Informational Technology Services to maintain a video lab facility that faculty and departments use for professional video production. ETC staff also manage the Iowa Communications Network fiber-optic classroom located in the College of Education.

**Libraries**

The Main Library and the Psychology Library provide books, periodicals, reference works, videos, ERIC microfiche, tests, and a reserved book room for students and faculty.

**Educational Placement**

The Educational Placement Office helps students and alumni pursuing careers in teaching, research, and leadership in education. Current information about services and career resources is available through the Educational Placement Office's web site (click “Employment Opportunities” on the College of Education home page). The site provides links to information about employment opportunities in schools, colleges, and related organizations. It also provides job search assistance, including curriculum vitae, résumé, and letter writing tips and samples; preparation for the job search; sample interview questions; portfolio examples; and employer advice for educators seeking jobs in K-12 environments, college and university settings, and in international locations.

The office’s professional staff is available for individual conferences with students to critique a résumé or curriculum vitae, discuss job search strategies, or assist with other career matters. Workshops, seminars, and special programs related to educational employment and the job search are offered regularly. University of Iowa students and alumni can establish a placement file consisting of letters of recommendation to be submitted to potential employers in support of employment applications.

**Iowa Testing Programs**

The Iowa Testing Programs staff develops standardized educational tests, such as the widely used Iowa Tests of Basic Skills and Iowa Tests of Educational Development, for use in elementary and secondary schools. This department also conducts research studies in educational measurement and evaluation, publishes the results of these studies, sponsors lectures and symposia, provides consulting services to school systems, and provides training experience for graduate students in measurement and statistics.

**Belin-Blank Center for Gifted Education**

The Connie Belin and Jacqueline N. Blank International Center for Gifted Education and Talent Development conducts research and service in gifted education. It also gathers and disseminates information on the education of gifted students. Based in the College of Education, the center was established in 1988 by the Board of Regents, State of Iowa, and was renamed in 1995.

The center’s programs and services include the Belin-Blank Fellowship Program in Gifted
Education; the Honors Opportunity Program; Invent Iowa; the Henry B. and Jocelyn Wallace National Research Symposium on Talent Development; family counseling; consultation; educational assessment; practicum and internship experiences; course work in gifted education (including state endorsement); academic talent searches for students in grades 2-9; and a number of precocious programs for gifted students in grades 2-12. The center also administers the Iowa Online Advanced Placement Academy.

The Belin-Blank center administers two University-led student programs: the Iowa Talent Project, developed for minority students from gifted programs in Des Moines, Iowa, and the National Academy of Arts, Sciences, and Engineering, a highly selective early-entrance program for students who have completed their junior year in high school.

The center also provides practicum and internship experiences for undergraduate and graduate students and coordinates course work for the Iowa Talented and Gifted Endorsement.

For more information, contact the Belin-Blank center director.

Institute for School Executives

The Institute for School Executives is a membership organization for school districts and other educational agencies. Established more than three decades ago and operated by the College of Education, the institute collaborates with other educational agencies to provide statewide continuing education and staff development opportunities for school leaders.

An advisory committee of school leaders provides direction and guidance for programming activities. Management and oversight are coordinated by a faculty member of the Division of Educational Policy and Leadership Studies, who serves as the institute's director. Institute activities provide an excellent opportunity for school leaders and College of Education students and faculty members to interact and exchange ideas, experience, and research information on a variety of topics.

Research Support

The dean's office, through the Grants and Research Services Center, provides grant and research-related support services for College of Education faculty, staff, and students. The GRSC staff members help identify internal and external funding sources, prepare and submit grant proposals and application materials, provide grant accounting services, and help in the preparation of applications for Human Subjects/Institutional Research Board review. The college also provides limited funds for faculty research, professional development, and travel.

The University of Iowa Cooperating Schools Program (CSP) is a University-wide service that facilitates placement of research projects conducted by faculty, staff, and students in public schools throughout Iowa. The CSP provides information to assist researchers with obtaining permission to conduct research in Iowa schools. This program was instituted at the request of school administrators charged with the responsibility of approving research projects in their schools.

Financial Support

Students interested in employment opportunities in the college's support units and special resources 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. Some assistantships are listed in a reference available at the Office of Teacher Education and Student Services.

Graduate Assistantships

Individual academic programs provide opportunities for teaching, research, or service assistantships as well as for fellowships and related employment opportunities. Inquiries should be addressed to the chair of the division or to the director of the program in which the student believes he or she can provide service or achieve an outstanding academic record. Assistantship appointments are usually, but not always, made by the program area.

Special Graduate Assistantships in Education

The Iowa Testing Programs provides funds to support a limited number of special graduate assistantships in education, in which students work in a research capacity under the direction of a faculty member of their choice. Students must be enrolled for at least 6 s.h. but not more than 12 s.h. per semester; the assistantships are for the academic year only and are renewable for a limited number of years. Students admitted to or pursuing any of the advanced degree programs offered by the College of Education are eligible to apply, provided they are committed to a professional career in the United States.

Candidates must submit transcripts of all completed college work (undergraduate as well as graduate), recommendation forms specific to the assistantship, and scores on the Graduate Record Examination (GRE) General Test. The application form for this assistantship program is available from the director of the Iowa Testing Programs. Application deadline is late February.

Student Financial Aid

Several scholarships are available to students for the semester in which they do student teaching. The scholarships are based on need, grade-point average, and future plans for teaching.

Scholarships are available each year for experienced teachers who are working toward licensure or an advanced degree in educational administration. The scholarships are based on the candidate's record as an effective teacher and promise as a school administrator; candidates must have completed four years of teaching experience and must be planning to work as elementary or secondary administrators.

Information and application forms for scholarships are available from the administrative assistant in the dean's office.

College of Education Awards

Awards are presented to outstanding students in the College of Education at a spring semester ceremony.

The Duane D. Anderson Scholarship: for a transfer student from an Iowa community college who is enrolled in a College of Education program. The award is based on promise and need.

The Jack Bagford Elementary Education Award: presented annually to an outstanding elementary education student who is an Iowa resident. The student should be scheduled to do student teaching the academic year following the award.

The Blommers-Hieronymus-Feldt Fellowship: awarded annually to a doctoral student in the field of educational measurement and statistics; nominees must have completed at least one full year in the graduate program at The University of Iowa. The award is based on academic performance in graduate course work and professional promise in the field of measurement and statistics; it supplements the recipient's teaching or research assistantship each year until graduation, to a maximum of three years.

Barry Bratton Award for Achievement in Design of Instructional Processes: for an outstanding student who has completed course work that reflects a commitment to the systematic design and improvement of instructional processes and materials.

The Debra Clausen Memorial Award: for a qualified graduate student who will work at the University Hospital School to evaluate and develop learning programs for students with mental disabilities, including Down Syndrome.

The T. Anne Cleary Psychological Research Scholarship: for an outstanding doctoral student engaged in research on the psychological or quantitative foundations of education. The award may be presented to one international student and one permanent resident of the United States each year.

The John Leonard Davies Memorial Award: for an outstanding graduate student majoring in education whose specialization is adult and continuing education.

The Harvey H. Davis Award: for an outstanding candidate for an advanced degree in higher education or educational administration, particularly a student interested in the financing of education.

The Terry Ganshaw Memorial Award: for an outstanding Ph.D. student in college student personnel.

The Albert Hood Promising Scholar Award: for an outstanding student in the student development program in postsecondary education who is in the process of developing a prospectus for master's or doctoral research. The
award is based on academic performance, quality of the research proposal, the research’s likely impact, and the student’s service to the program and the University.

The Howard R. Jones Achievement Award: for an outstanding graduate student who has made a noteworthy scholarly presentation at a national professional conference or published a significant scholarly article in a reputable professional journal or other substantial printed work.

Loetcher Science Education Scholarship: for a student in secondary science education, with preference given to those pursuing a chemistry emphasis.

The Perry Eugene McClenahan Award: for the outstanding candidate for an advanced degree in educational administration.

The Leonard A. Miller Memorial Award: for an outstanding first-year M.A. student majoring in rehabilitation counseling.

Minority Student Award: for an outstanding student in elementary social studies.

The James and Coretta Stroud Fellowship for an outstanding international student in the Division of Psychological and Quantitative Foundations who is entering the dissertation phase of study.

The Betty Piercy Scholarship Award: for an outstanding student in reading who is expected to graduate with high scholarship who show promise in the field of reading.

The Pi Lambda Theta Award—Senior, M.A.: for an outstanding student who has been admitted to the College of Education undergraduate or graduate program and is pursuing a teaching degree in educational administration.

The Howard R. Jones Achievement Award: for an outstanding student in elementary social studies.

The Perry Eugene McClenahan Award: for the outstanding candidate for an advanced degree in educational administration.

The Leonard A. Miller Memorial Award: for an outstanding first-year M.A. student majoring in rehabilitation counseling.

Minority Student Award: for an outstanding student in elementary social studies.

The James and Coretta Stroud Fellowship for an outstanding international student in the Division of Psychological and Quantitative Foundations who is entering the dissertation phase of study.

The U-High Innovative Developments in Education Award: for students who have completed or will complete student teaching during the school year. The award is based on outstanding performance as a student teacher, particularly for innovation and creativity shown during the experience.

The Erwin and Louise Wasta International Scholarship: for an international student enrolled in a College of Education program. The award is based on promise and need.

**Faculty**

All tenure-track faculty members with professional rank hold earned doctorates in their teaching fields, and many have had teaching or administrative experience in the public schools. Several hold joint appointments in the Colleges of Liberal Arts and Sciences.

**Interdivisional Courses**

- **07X:029 First-Year Seminar** 1-2 s.h.
  - Small discussion class taught by a faculty member; topics chosen by instructor, may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

- **07X:100 Honors Seminar in Education** 1 s.h.
  - Research in education and related professions in collaboration with a College of Education faculty member of student’s choice; preparation for senior honors project.

- **07X:101 Senior Honors Project** 1-2 s.h.
  - Collaboration with a faculty member on research project; written report. Prerequisite: 07X:100.

**COUNSELING, REHABILITATION, AND STUDENT DEVELOPMENT**

Chair: Dennis R. Maki

Professors: Nicholas Colangelo, Dennis Harper, David A. Jepsen, Dennis R. Maki, Leslie Margolin, Ernest Pacavella, Villa Tarvydas, Elizabeth J. Whitt

Professors emeriti: Richard Dustin, Harold B. Engen, Albert B. Hood

Associate professor: Debora Liddell

Associate professors emeriti: William A. Matthes, Ralph R. Roberts Jr.

Assistant professors: Amy Milsom, Terrell Porman, Jodi Saunders, John Wadsworth, Sherry Watt

Assistant adjunct professors: David Grady, Barbara O’Rourke, Johnnie Sims

Adjunct lecturers: Carlos Serrato, Orville Townsend

Graduate degrees: M.A., Ph.D.

Web site: http://www.education.uiowa.edu/crsd

The Division of Counseling, Rehabilitation, and Student Development generates and disseminates knowledge, develops skills, and promotes attitudes about effective professional practices that foster human development across the lifespan. The division prepares practitioners and scholars primarily at the graduate level, through degree programs in counselor education, rehabilitation counseling, school counseling, and student affairs. It also offers basic courses in interviewing and interpersonal skills for students in other professional and graduate programs, as well as for undergraduates.

**Graduate Programs**

The division offers graduate degrees in student affairs, rehabilitation counseling, school counseling, and counselor education. Prospective students must meet admission requirements for the individual programs as well as the division’s general admission requirements (see “Admission” later in this section of the Catalogs).

Upon completing a degree in the division, students are evaluated and are expected to have awareness, knowledge, and skills in these areas:

- current definitions, professional standards, and appropriate professional practices regarding multiculturalism;
- what it means to be a multiculturally competent helping professional;
- integrated feedback into practice and professionalism in interpersonal interactions;
- personal limitations and strengths that could ultimately support or harm a client or student;
- a personal plan for future practice in the field regarding multicultural relationships.

**Student Affairs**

Graduate degrees in student affairs include a Master of Arts in student development in postsecondary education and two doctoral degrees. The Doctor of Philosophy in student affairs administration and research emphasizes administrative practice and college student and student affairs research. The Doctor of Philosophy in student development in postsecondary education emphasizes counseling and helping relationships.

**M.A. in Student Development in Postsecondary Education**

The Master of Arts emphasizes theory and practice. It prepares students for a wide variety of entry- and mid-level positions in colleges and universities, including admissions and orientation, student activities, career planning, academic planning, residence halls, international college counseling. Students are required to pass written comprehensive examinations. A master’s thesis is optional.

The program is accredited by the Council for the Accreditation of Counseling and Related Educational Programs (CACREP).

**ADMISSION**

Applicants who meet the following criteria are given preference for admission: an undergraduate g.p.a. of at least 3.00; a combined score (verbal and quantitative) of 1000 or higher on the Graduate Record Exam (GRE) General Test; significant undergraduate leadership experience; writing ability; and fit with the program.

The admissions committee considers each applicant’s entire application portfolio. Personal interviews are encouraged and may be required. All applications must include complete...
application forms; three letters of reference and/or completed recommendation forms; a written statement of goals, interests, and experiences relevant to graduate study in student development at The University of Iowa; official GRE scores; and official transcripts for previous postsecondary course work. Applications are considered for fall semester. Applications for August entry are due by April 1, although applicants who submit their materials by February 1 receive preference and have maximum access to fellowship and assistantship opportunities.

Campus visit days, held each March and/or April, give admitted M.A. students the opportunity to interview for assistantships and meet current students. Prospective students also may arrange campus visits at other times.

REQUIREMENTS
The curriculum is based on theories of student learning and development; theories of organization and administration; knowledge of higher education contexts; research on college students, student affairs, and higher education; counseling and helping skills; student affairs administration; and connections among research, theories, and practice.

The M.A. program requires 48 s.h. and is designed for two years of full-time study (9-12 s.h. per semester), although some students work part-time toward the degree.

Experiential Components
The program requires a practicum and an internship. This experiential course work provides professional development experiences for the program's students. Practical experiences in the program include developmental work with individual students; program planning, implementation, and evaluation; administration and supervision; exposure to diverse clientele; use of assessment and evaluation tools; familiarity with electronic technologies for communication and teaching; and application of ethical guidelines.

Students must complete at least one eight-hour-per-week practicum in a student services office, usually during the second semester of the first year. An M.A.-level site supervisor and program faculty members supervise the practicum, which includes a weekly seminar (07C:333).

After successfully completing the practicum, students are eligible to begin a required internship in an approved student services site. Interns must complete 600 hours under the supervision of an M.A.-level supervisor. Most students complete this requirement in half-time graduate assistantships over two semesters during the second year. The internship helps students integrate theory and standards into practice and develop a professional identity in the field. Regular evaluations are required and students meet weekly with their classmates and faculty supervisor in the capstone seminar (07C:363).

In addition to practicums and internships on campus, there are field site opportunities at several nearby colleges. Cornell College, Mount Mercy College, Coe College, and Kirkwood Community College are within a 20-mile drive from Iowa City. Grinnell College, Saint Ambrose University, Muscatine Community College, and Iowa Wesleyan College are within a 90-minute drive.

Sample Course Schedule
First year, fall semester:
07C:221 Theories of Counseling and Human Development Across the Life Span 3 s.h.
07C:278 Applied Microcounseling 3 s.h.
07C:281 Introduction to Computer Technology in the Helping Professions 1 s.h.
07C:330 Introduction to Student Services 3 s.h.
07C:331 College Students and Their Environments 3 s.h.
First year, spring semester:
07C:203 Career Guidance and Job Placement 3 s.h.
07C:250 Multiculturalism in the Helping Professions 3 s.h.
07C:333 Practicum in Student Services 3 s.h.
07C:334 College Student Learning and Cognitive Development 3 s.h.
Second year, fall semester:
07B:206 Research Process and Design 3 s.h.
07C:332 College Student Psychosocial and Identity Development 3 s.h.
07C:335 Administration of Student Services 3 s.h.
07C:363 Capstone Seminar in Student Services 3 s.h.
Second year, spring semester:
07B:100 Issues and Policies in Higher Education 3 s.h.
07C:363 Capstone Seminar in Student Services 3 s.h.
Electives 3-6 s.h.

Ph.D. in Student Affairs Administration and Research
The interdepartmental doctoral program in student affairs administration and research is offered by the Division of Counseling, Rehabilitation, and Student Development and the Division of Educational Policy and Leadership Studies. The program provides in-depth preparation for leadership positions in student affairs administration, graduate student affairs preparation programs, and/or research about college students and student affairs practice.

ADMISSION
Applicants who meet the following criteria are given preference for admission: a master's degree in student personnel, higher education, counselor education, or a related field; an undergraduate g.p.a. of at least 3.00 or a graduate g.p.a. of at least 3.00; a combined score (verbal and quantitative) of 1100 or higher on the Graduate Record Exam (GRE) General Test; significant work experience in student affairs, community organizations, or successful related work; writing ability; and fit with the program.

The admissions committee considers each applicant's entire application portfolio. Personal interviews are encouraged and may be required. All applications must include complete application forms; three letters of reference and/or completed recommendation forms; a written statement of goals, interests, and experiences relevant to graduate study in student development at The University of Iowa; official GRE scores; and official transcripts for previous postsecondary course work. Doctoral applications are considered for fall enrollment only. Application deadline is January 1.

REQUIREMENTS
Educational foundations covered in the curriculum include college student learning and development, student affairs administration, integrative experiences, research tools, and minor area courses. A nine-hour written comprehensive examination must be completed successfully before the student can be admitted to candidacy for the Ph.D. The degree program requires 90 s.h. beyond the bachelor's degree (approximately 60 s.h. beyond the master's degree) although a student's academic and experiential backgrounds, needs, and interests determine the required credit. Decisions are made case-by-case in collaboration with the student and his or her advisory committee. Requirements are as follows.

College Student Research Core
Total of 18 s.h.
07C:331 College Students and Their Environments 3 s.h.
07C:334 College Student Learning and Cognitive Development 3 s.h.
07C:332 College Student Psychosocial and Identity Development 3 s.h.
07C:335 Administration of Student Services 3 s.h.
07C:363 Capstone Seminar in Student Services 3 s.h.
Second year, spring semester:
07B:100 Issues and Policies in Higher Education 3 s.h.
07C:363 Capstone Seminar in Student Services 3 s.h.
Electives 3-6 s.h.

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The admissions committee considers each applicant's entire application portfolio. Personal interviews are encouraged and may be required. All applications must include complete application forms; three letters of reference and/or completed recommendation forms; a written statement of goals, interests, and experiences relevant to graduate study in student development at The University of Iowa; official GRE scores; and official transcripts for previous postsecondary course work. Doctoral applications are considered for fall enrollment only. Application deadline is January 1.

REQUIREMENTS
Educational foundations covered in the curriculum include college student learning and development, student affairs administration, integrative experiences, research tools, and minor area courses. A nine-hour written comprehensive examination must be completed successfully before the student can be admitted to candidacy for the Ph.D. The degree program requires 90 s.h. beyond the bachelor's degree (approximately 60 s.h. beyond the master's degree) although a student's academic and experiential backgrounds, needs, and interests determine the required credit. Decisions are made case-by-case in collaboration with the student and his or her advisory committee. Requirements are as follows.

College Student Research Core
Total of 18 s.h.
07C:331 College Students and Their Environments 3 s.h.
07C:334 College Student Learning and Cognitive Development 3 s.h.
07C:332 College Student Psychosocial and Identity Development 3 s.h.
07C:335 Administration of Student Services 3 s.h.
07C:363 Capstone Seminar in Student Services 3 s.h.
Second year, spring semester:
07B:100 Issues and Policies in Higher Education 3 s.h.
07C:363 Capstone Seminar in Student Services 3 s.h.
Electives 3-6 s.h.

Administrative Core
Total of 21 s.h.
All of these:
07B:216 Finance in Education 3 s.h.
07C:330 Introduction to Student Services 3 s.h.
07C:335 Administration of Student Services 3 s.h.
07C:337 Administration Theory in Student Affairs 3 s.h.
07C:432 Seminar: Student Affairs Practice 3 s.h.
One elective (e.g., 07B:224, 07C:366) 3 s.h.

One of these:
07B:218 The Law and Higher Education 3 s.h.
07B:318 Legal Issues in Student Services 3 s.h.

Integrative Experiences
Total of 3-9 s.h., based on student's background, needs, goals, and experiences
07C:433 Seminar: Current Issues in Student Affairs 3 s.h.
07C:333 Practicum in Student Services or equivalent experience (maximum of 6 s.h.) 3 s.h.

Research Tools
Total of 21 s.h.
All of these:
07C:426 Research design course (07B:206 or equivalent) 3 s.h.
07P:243 Intermediate Statistical Methods (or equivalent) 3 s.h.
One qualitative methods course
(07C:338 or equivalent) 3 s.h.
07C:461 Practicum in Research 3 s.h.

Two of these advanced quantitative or qualitative methods courses, or other approved research methods courses (total of 6 s.h.):
07P:244 Correlation and Regression 4 s.h.
07P:245 Applied Multivariate Analysis 3 s.h.
113:202 Ethnographic Field Methods 3 s.h.

One of these or an instrument development courses:
07P:257 Educational Measurement and Evaluation 3 s.h.
07P:265 Program Evaluation 3 s.h.

MINOR AREA

Students earn 9 s.h. in minor area courses taken outside the College of Education. Disciplines such as sociology, psychology, anthropology, history, management and organizational studies, and law inform student affairs administration and research and provide deeper and broader understanding of student affairs practice and scholarship. Leaders in student affairs benefit from the varied perspectives that other disciplines can provide.

DISSERTATION

Students must complete a research dissertation, for a total of 12 s.h.

Ph.D. in Student Development in Postsecondary Education

The doctoral program in student development in postsecondary education provides an academic, research-oriented curriculum that draws heavily on developmental and counseling theories. In addition to major course work in student development, students complete a course area in counseling and a minor. Students generally complete the program in three or four years of full-time study. The program is accredited by the Council for the Accreditation of Counseling and Related Educational Programs (CACREP).

ADMISSION TO THE PROGRAM

Applicants who meet the following criteria are given preference for admission: a master’s degree in student personnel, higher education, counselor education, or a related field; an undergraduate g.p.a. of at least 3.00 or a graduate g.p.a. of at least 3.00; a combined score (verbal and quantitative) of 1100 or higher on the Graduate Record Exam (GRE) General Test; significant contribution to student affairs, community organizations, or successful related work; writing ability; and fit with the program.

The admissions committee considers each applicant’s entire application portfolio. Personal interviews are encouraged and may be required. All applications must include complete application forms; three letters of reference and/or completed recommendation forms; a written statement of goals, interests, and experiences relevant to graduate study in student development at The University of Iowa; official GRE scores; and official transcripts for previous postsecondary course work.

Doctoral applications are considered for fall enrollment only. Application deadline is January 1.

REQUIREMENTS

Educational foundations covered in the curriculum include counseling, research and statistics, student development, and a minor area of the student’s choice. A nine-hour written comprehensive examination must be completed successfully before the student can be admitted to candidacy for the Ph.D. Most students complete the Ph.D. with 91-110 s.h. of postbaccalaureate work.

The following is a sample curriculum.

Division Core

07C:255 Vocational Psychology (or equivalent) 3 s.h.
07C:347/07P:347 Systems Intervention 3 s.h.
07C:353 Advanced Counseling and Psychotherapy 3 s.h.
07C:357 Advanced Group Counseling and Psychotherapy 3 s.h.
07C:360 Advanced Practicum in Counseling 3 s.h.
07C:380 Practicum in College Teaching 3 s.h.
07C:400 Seminar: Ethics and Issues in Counseling 3 s.h.
07C:454 Supervision Theory and Practice 3 s.h.
07C:455 Supervising the Counseling Practicum (minimum requirement) 3 s.h.
07C:465 Internship in Counselor Education (600 hours minimum) 3 s.h.
07P:385 Teaching and Learning in Higher Education 3 s.h.
An advanced multicultural counseling course
At least one course in human development
At least one advanced course in psychological or educational measurement 3 s.h.

Research Tools and Applications

The following are minimum requirements. Students are expected to master research tools and applications beyond the minimum requirements in order to develop research skills consistent with their professional goals.

07P:243 Intermediate Statistical Methods 3 s.h.
At least one course in quantitative research methods chosen from these (at least 3 s.h.):
07P:244 Correlation and Regression 4 s.h.
07P:245 Applied Multivariate Analysis 3 s.h.
07P:246 Design of Experiments 4 s.h.
07P:250 Computer Packages for Statistical Analysis 2-3 s.h.
07P:252 Introduction to Multivariate Statistical Methods 3 s.h.
At least one course in qualitative research methods 3 s.h.
07C:394 Master’s Equivalency Research (for students without an approved M.A./M.S. thesis) 1-3 s.h.
07C:460 Seminar: Research in Counseling 3 s.h.
07C:493 Ph.D. Thesis 10-15 s.h.

Student Development Theory and Practice

07C:431 Seminar: Research on College Students 3 s.h.
07C:432 Seminar: Student Affairs Practice 3 s.h.
07C:433 Seminar: Current Issues in Student Affairs 3 s.h.

MINOR OUTSIDE THE DIVISION

Students take a series of courses, typically at least three (9 s.h.) in an area of study outside the division. Courses are selected in collaboration with the minor adviser and are approved by the curriculum plan committee. Suggested minor curriculum choices may include measurement and statistics, comparative education, vocational counseling, academic advising, and sociology.

Graduates of this program who also complete a CACREP Master of Arts are eligible for licensure. Career options include counselor education faculty member who researches college students, student affairs administrator, and licensed practicing counselor (private or university).

COMPREHENSIVE EXAMINATION

The comprehensive exam consists of three 3-hour examinations and an oral defense, including a division comprehensive exam; a student development program in postsecondary education comprehensive exam; and an exam on the minor area outside the division.

MASTER’S THESIS EQUIVALENCY

A master’s equivalency research project is required of all students who have not completed a master’s thesis. The research project gives the student an opportunity to demonstrate her or his ability to do original research and writing. The research project is evaluated by a committee consisting of the major adviser and at least two other department faculty members. Successful completion includes a written paper and an oral defense. The research project may take the form of an M.A. thesis or of a research paper that can be submitted to a professional journal or to a state or national conference for presentation. The master’s equivalency research project must be completed within 24 months or the first 30 s.h., whichever provides the best advantage for the student. The project also must be completed before the student can take comprehensive examinations. Students are restricted from registering for course work beyond the 30 s.h. limit until the master’s equivalency requirement is met. Students may earn 1-3 s.h. for the master’s equivalency project.

Students who have completed an M.A. or M.S. thesis at another university or in a field outside student development in postsecondary education should submit the thesis to a committee consisting of the major adviser and at least two other division faculty members, who will review the thesis relative to specific program requirements of a project reflecting inquiry following an acknowledged research methodology. Based on this review, a decision will be made as to whether or not the student will be required to complete a master’s equivalency research project. The Approval of Master’s Equivalency Project Form, available in the division office, must be completed.
ADMISSION

No specific undergraduate major area of study is required, but a major in one of the social sciences is considered good preparation for master's study in rehabilitation counseling. Applicants should have a good academic record and relevant experience, such as assisting individuals with disabilities. Postbaccalaureate work experience relevant to the field of rehabilitation is preferred. The program encourages applications from persons traditionally underrepresented in the field, particularly those with a disability and/or members of minority or ethnic groups. Applicants also must meet the division's admission requirements (see "Admission" later in this section of the Catalog).

Applicants should submit a written statement of their purpose in pursuing the degree and their personal career objectives. A personal interview is required, either in person or by telephone.

Applications for full-time study are considered for summer session admission only. Applications for June entry are due by March 1 for international applicants and April 1 for U.S. applicants. Applicants who submit their materials by February 1 receive preference and have maximum access to the Rehabilitation Services Administration Scholars Program.

REQUIREMENTS

The curriculum blends academic work with supervised clinical experiences. The program requires a minimum of 60 s.h., including a 12 s.h. specialty emphasis area of the student's choice. Potential specialization areas include aging and rehabilitation, brain injury rehabilitation, law and disability, mental health/ substance abuse counseling and psychiatric rehabilitation, case management, Spanish/English rehabilitation practice, assistive technology, and administration.

Students can complete the program in two academic years (four semesters plus two summer sessions), which enables them to finish the program in approximately 21 months. Emphasis is placed on experiential components; students take three semesters of practicum concurrently with academic courses. The program concludes with a full-time (40 hours per week) internship during a spring semester. Students generally are assigned to rehabilitation agencies or facilities that have programs or clientele that match the student's interests and educational objectives and that meet CORE accreditation standards.

Required rehabilitation courses, supervised practicums, internships, and comprehensive examinations are not offered during summer sessions.

Requirements are as follows.

Division Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>07C:202</td>
<td>Introduction to Group Counseling</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07C:210</td>
<td>Rehabilitation Client Assessment</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07C:221</td>
<td>Theories of Counseling and Human Development Across the Life Span</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07C:250</td>
<td>Multiculturalism in Helping Professions (or equivalent)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07C:270</td>
<td>Issues and Ethics in Counseling</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07C:278</td>
<td>Applied Microcounseling</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07C:281</td>
<td>Introduction to Computer Technology in the Helping Professions (or equivalent)</td>
<td>1 s.h.</td>
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<tr>
<td></td>
<td>Clinical practice (see &quot;Clinical Practice,&quot; below)</td>
<td>16 s.h.</td>
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</tbody>
</table>

Program Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>07C:241</td>
<td>Introduction to Rehabilitation Counseling and Case Management</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07C:247</td>
<td>Medical Aspects of Disability</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07C:341</td>
<td>Job Development, Placement, and Follow-Up</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07C:342</td>
<td>Psychosocial and Developmental Aspects</td>
<td>3 s.h.</td>
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Clinical Practice

All of these:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>07C:348</td>
<td>Prepracticum in Rehabilitation Counseling and Case Management</td>
<td>arr.</td>
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<tr>
<td>07C:349</td>
<td>Practicum in Rehabilitation Counseling and Case Management</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07C:352</td>
<td>Internship in Rehabilitation Counseling and Case Management</td>
<td>12 s.h.</td>
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One of these:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>07C:350</td>
<td>Advanced Practicum in Rehabilitation Counseling and Case Management</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07C:351</td>
<td>Internship in Substance Abuse/Mental Health Counseling</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

SPECIALIZATION

With their adviser's approval, students select 12 s.h. of course work that forms a cohesive whole appropriate to the student's specialty area. The specialization must include 9 s.h. of didactic course work and 3 s.h. of professional practice appropriate to the specialty at the practicum or internship level.

COMPREHENSIVE EXAMINATION

In addition to the divisional comprehensive examination, a three-hour written examination on the process and practice of rehabilitation counseling is required. Exams are offered only during fall and spring semesters.

Ph.D. in Rehabilitation Counselor Education

The doctoral program in rehabilitation counselor education prepares professionals for leadership roles in rehabilitation counselor education, research, administration, and service delivery systems. It provides rehabilitation counselors the opportunity to master knowledge; clinical, teaching, and supervisory skills; and research competencies at the most advanced levels.

Students in the program focus on three areas of advanced development: counselor education and supervision, research, and professional practice. The program is flexible, permitting students to pursue individualized plans of study within the required curriculum. Ph.D. graduates are expected to have the knowledge and skills to teach at colleges and universities, supervise other professionals, provide clinical services to clients, and have competencies to engage in and evaluate theoretical, qualitative, and empirical research.

ADMISSION

Applicants should have a master's degree in rehabilitation counseling or a related area; a graduate g.p.a. of 3.00 or higher; a composite score (verbal and quantitative) of 1100 or higher on the Graduate Record Exam (GRE) General Test; and one year of full-time work experience in rehabilitation or a related field. Applicants should include a written statement of purpose for pursuing the Ph.D. in rehabilitation counselor education and personal career objectives, and three letters of recommendation. A personal interview is required.

Applications are accepted for fall entry. The application deadline is January 1.

REQUIREMENTS

The program requires a minimum of 90 s.h. of graduate credit. Most students complete their course work in three years and take a fourth year to complete the dissertation requirement. For students who have not completed a rehabilitation counseling master's degree curriculum, these courses or their equivalents also are required. This combination of master's...
and doctoral course work ensures exposure to vocational rehabilitation as well as independent living rehabilitation processes, concepts, programs, and services.

Each student is required to submit a curriculum plan. The rehabilitation counseling faculty reviews each student annually. To continue in the program, students must meet the division’s requirements for maintaining candidacy.

Requirements are as follows.

**Division Core**

- **07C:255 Vocational Psychology (or equivalent)** 3 s.h.
- **07C:353 Advanced Counseling and Psychotherapy** 3 s.h.
- **07C:357 Advanced Group Counseling and Psychotherapy** 3 s.h.
- **07C:400 Seminar: Ethics and Issues in Counseling** 3 s.h.

**Program Requirements**

Students are expected to have completed core rehabilitation counseling requirements during master’s degree work (see “M.A. in Rehabilitation Counseling” in this section of the Catalog). The adviser and program faculty determine which master’s-level courses must be taken to correct deficiencies. Students also must complete the following.

- **07C:360 Advanced Practicum in Counseling** 3 s.h.
- **07C:369 Advanced Seminar in Rehabilitation Counseling and Psychology** 3 s.h.
- **07P:385 Teaching and Learning in Higher Education** 3 s.h.
- **07C:454 Supervision Theory and Practice** 3 s.h.
- **07C:455 Supervising the Counseling Practicum** 3 s.h.
- **07C:250 Social Psychology of Disability** 3 s.h.

**Statistics and Research Design**

- **07C:461 Practicum in Research** 3 s.h.
- **07P:243 Intermediate Statistical Methods** 3 s.h.
- **07P:246 Design of Experiments** 4 s.h.
- One qualitative methods in research course 3 s.h.

One quantitative research methods course chosen from these (at least 3 s.h.): 4 s.h.

- **07P:244 Correlation and Regression**
- **07P:245 Applied Multivariate Analysis**
- **07P:250 Computer Packages for Statistical Analysis**
- **07P:252 Introduction to Multivariate Statistical Methods** 3 s.h.

**MINOR**

Students plan a minor in collaboration with their major adviser and curriculum plan committee. The minor must be outside of the division.

**COMPREHENSIVE EXAMINATION**

The comprehensive examination consists of three exams that total nine hours. They cover the division core comprehensive (three hours), rehabilitation counseling—theory, practice, and research (three hours), and the minor area (three hours).

**DISSERTATION**

The dissertation is a major research study planned in collaboration with the student’s major adviser. At least two rehabilitation counseling faculty members must serve on the dissertation committee; one of them must chair or co-chair the committee.

07C:493 Ph.D. Thesis 10-15 s.h.

**School Counseling**

**M.A. in School Counseling**

The master’s program in school counseling prepares individuals to work effectively as counselors in K-12 school settings. The program is accredited by the Council for the Accreditation of Counseling and Related Educational Programs (CACREP). Successful graduates are eligible for elementary and/or secondary school counselor licensure in Iowa and for national counselor certification by the National Board for Certified Counselors.

**ADMISSION**

Applicants should have an undergraduate g.p.a. of 3.00 or higher; composite score (verbal and quantitative) of 1,000 or higher on the Graduate Record Exam (GRE) General Test; and successful experiences with children and/or adolescents. Application deadlines are as follows. Fall or summer entrance: March 1 for international applicants; April 1 for U.S. applicants

**REQUIREMENTS**

The program requires a minimum of 48 s.h. During the first two semesters, students take core cognate courses and the microcounseling clinical skills laboratory. Then they enter a counseling practicum followed by an internship. Students who enter without teaching licensure are required to take additional course work in education (07E:170 Classroom Management, 07E:100/07E:100 Foundations of Education, and 07U:100 Foundations of Special Education) to meet school counselor licensure standards.

Students are expected to complete at least 100 contact hours in practicum and 600 contact hours in internship activities in an approved school setting, under the supervision of an experienced licensed school counselor and a University faculty supervisor.

Students must complete program and division core courses, except electives, before enrolling in 07C:300 Practicum in School Counseling for the fall semester of the second year. Students who are not licensed teachers must complete course work in education before enrolling in the practicum.

Each student’s progress is reviewed periodically by the program faculty. Students who have successfully completed all prerequisite courses for 07C:300 Practicum in School Counseling are reviewed in the spring to assure that they are prepared for the practicum offered only in the fall semester. During the fall, students are evaluated to assure their readiness for the internship 07C:321 or 07C:322, which requires assignment in approved schools for the spring semester.

**Suggested Plan of Study**

The following plan of study suggests classes for four semesters of full-time study. Students who do not have teacher licensure are required to complete at least three additional courses in education before the second year of classes.

First year, fall semester:

- **07C:200 Professional School Counselor** 3 s.h.
- **07C:221 Theories of Counseling and Human Development Across the Life Span** 3 s.h.
- **07C:250 Multiculturalism in Helping Professions** 3 s.h.
- **07C:278 Applied Microcounseling** 3 s.h.
- **07P:143 Introduction to Statistical Methods** 3 s.h.

First year, spring semester:

- **07C:202 Introduction to Group Counseling** 3 s.h.
- **07C:203 Career Guidance and Job Placement** 3 s.h.
- **07C:222 Counseling Children and Adolescents in Schools** 3 s.h.
- **07C:254 Appraisal in Counseling** 3 s.h.
- **07C:281 Introduction to Computer Technology in the Helping Professions** 1 s.h.
- **07P:200 Educational Psychology** 3 s.h.

Second year, summer session:

Courses not completed during first year

Second year, fall semester:

- **07C:230 School Counseling Program Leadership and Management** 3 s.h.
- **07C:300 Practicum in School Counseling** 3 s.h.
- **07U:140 Characteristics of Disabilities** 3 s.h.

Second year, spring semester:

- **07C:321-322 Internship in School Counseling—Elementary and Secondary (clinical instruction, 600 hours)** 6 s.h.
- Approved electives 3 s.h.

**Counselor Education**

**Ph.D. in Counselor Education**

The doctoral program in counselor education prepares students with knowledge and skills basic to counseling, teaching, consulting, supervising counselors, and doing research. Graduates enter professional work as counselors, counselor supervisors, counselor educators, researchers and/or consultants, or work in other positions requiring expertise in human relations.

Counselor education graduates are prepared to teach the knowledge and skills required of professional counselors and to supervise beginning and advanced counselors; perform counseling interventions with individuals and groups; and teach human relations skills in colleges or universities. They provide professional consultation with counseling practitioners and policy makers about counseling program development and evaluation. They also may
perform research that contributes to knowledge about counseling, supervision, and counselor education.

The program is accredited by the Council for the Accreditation of Counseling and Related Educational Programs (CACREP). The American Counseling Association (ACA) and the Association for Counselor Education and Supervision (ACES) are the professional organizations most related to program activities.

**ADMISSION**

In addition to the division’s admission requirements (see “Admission” later in this section of the Catalog), Ph.D. applicants must provide evidence of successful experience in counseling or a closely related profession. Applicants without experience may be admitted if their credentials indicate exceptional strengths.

Admission is for fall entry only. The application deadline is January 1.

**REQUIREMENTS**

The program requires 96 s.h. of graduate study. Students complete required courses in counseling, research tools and applications, and a minor outside the division. They also take comprehensive examinations and complete a dissertation.

**Required Courses**

- 07C:255 Vocational Psychology (or equivalent) 3 s.h.
- 07C:347 Home/School/Community: System Interventions 3 s.h.
- 07C:353 Advanced Counseling and Psychotherapy 3 s.h.
- 07C:357 Advanced Group Counseling and Psychotherapy 3 s.h.
- 07C:360 Advanced Practicum in Counseling 3 s.h.
- 07C:380 Practicum in College Teaching 3 s.h.
- 07C:400 Seminar: Ethics and Issues in Counseling 3 s.h.
- 07C:454 Supervision Theory and Practice 3 s.h.
- 07C:455 Supervising the Counseling Practicum 3 s.h.
- 07C:465 Internship in Counselor Education (at least 240 hours) 3 s.h.
- 07P:395 Teaching and Learning in Higher Education 3 s.h.
- An advanced multicultural counseling course 3 s.h.
- At least one course in human development 3 s.h.
- At least one advanced course in psychological or educational measurement 3 s.h.

**Research Tools and Applications**

The following are minimum requirements. Students are expected to master research tools and applications beyond the minimum requirements in order to develop research skills consistent with their professional goals.

- 07C:394 M.A. Equivalency Research (for students without an approved M.A./M.S. thesis) 1-3 s.h.
- 07C:460 Seminar: Research in Counseling 3 s.h.
- 07C:493 Ph.D. Thesis 10-15 s.h.
- 07P:243 Intermediate Statistical Methods 3 s.h.

At least one course in qualitative research methods 3 s.h.

At least one course in quantitative research methods chosen from these (at least 3 s.h.):

- 07P:244 Correlation and Regression 4 s.h.
- 07P:245 Applied Multivariate Analysis 3 s.h.
- 07P:246 Design of Experiments 4 s.h.
- 07P:250 Computer Packages for Statistical Analysis 2-3 s.h.
- 07P:252 Introduction to Multivariate Statistical Methods 3 s.h.

**Minor**

Students take a series of courses (typically a minimum of three) in an area of study outside the Division of Counseling, Rehabilitation and Student Development. They select course work in collaboration with their minor adviser, a faculty member from the area, and with approval of the curriculum plan committee.

**Master’s Thesis Equivalency**

Students must satisfy the program’s requirements. An M.A. thesis equivalency must be satisfactorily completed within 30 s.h. or 24 months, and prior to the comprehensive examination.

**COMPREHENSIVE EXAMINATION**

The comprehensive examination consists of three 3-hour exams and an oral defense, including a division comprehensive exam, a counselor education program comprehensive exam, and an exam on the minor area outside the division. The comprehensive exam may be taken in the student’s final semester of course work.

**DISSERTATION**

The major research project culminating in the doctoral thesis may be on any topic related to counseling and counselor education. The topic and procedures are approved by the thesis adviser and the examining committee at a formal prospectus meeting. The final oral examination on the thesis is conducted by the examining committee. Students usually earn 10 s.h. for dissertation work, but in some instances they may earn up to 15 s.h.

**Admission**

Detailed information on admission and program requirements is presented on the division’s web site and in the brochure “Programs for Advanced Degrees,” available from the Division of Counseling, Rehabilitation, and Student Development.

All applicants for the Master of Arts and Doctor of Philosophy typically are expected to meet the following admission requirements:

- completed graduate application form;
- copies of official transcripts of all previous college work—undergraduate and graduate;
- official report of Graduate Record Examination (GRE) General Test scores—verbal and quantitative;
- a statement of the candidate’s reasons for seeking an advanced degree in the division, including a statement of personal career objectives;
- a personal or telephone interview, if requested;
- three current letters of recommendation from persons in a position to assess both the applicant’s prospects for completing either the M.A. or Ph.D., and his or her commitment to the profession.

In addition to the above, the following standards are considered for individual program admission decisions.

**Master of Arts:** An undergraduate g.p.a. of at least 3.00 and a composite (verbal and quantitative) GRE General Test score of 1000 or higher

**Doctor of Philosophy:** An undergraduate g.p.a. of at least 3.00 or, if a graduate degree has been completed, a graduate g.p.a. of at least 3.00; composite (verbal and quantitative) GRE General Test score of 1100 or higher

Typically, doctoral students are not admitted unless they have completed a master’s degree in counseling or a related field. Relevant work experiences are important. Students who are accepted without a related master’s degree must complete core master’s-level coursework before taking doctoral-level advanced courses. Master’s-level courses and experiences to be completed are determined in consultation with the adviser and are included in a student’s curriculum plan.

**International Students**

International students also must provide a Test of English as a Foreign Language (TOEFL) score with their applications. Typically, a score of 550 on the paper-based test (213 on the computer-based test) is required. Depending on the TOEFL score, the division may require students to take and pass University of Iowa course work in English usage that is designed especially for them.

**Final Decision, Special Requirements**

The criteria listed above are minimum standards in considering applicants for admission. Final decisions on admissions are made by faculty committees. Also, some programs may have specific admission requirements due to licensure/certification standards. Special admission requirements are listed with individual program information.

**Conditional Admission**

Applicants who do not meet all the minimum requirements for regular admission consideration may still be admitted on a conditional basis if the faculty determines that there are strengths and promises warranting conditional status. The following are divisional conditions:

**At the M.A. level:** Students must complete at least 12 s.h. of core courses (approved by an adviser) over two consecutive sessions and earn a cumulative g.p.a. of at least 3.00.

**At the Ph.D. level:** Students must complete at least 12 s.h. of core courses (approved by an adviser) over two consecutive sessions and earn a cumulative g.p.a. of at least 3.00.
Maintaining Candidacy
All graduate students must meet the following standards in order to maintain their candidacy for a degree:
- Maintain a g.p.a. of at least 3.00;
- Successfully complete a practicum, internship, or equivalent professional experience;
- Maintain professional behavior consistent with the American Counseling Association code of ethics and any additional code of professional ethics adhered to in any agency in which the student completes a practicum or internship;
- Demonstrate progress toward the degree through successful completion of hours specified in the curriculum plan and active registration each session (exceptions may be approved by the advisor).

Each student’s academic and professional progress is reviewed annually. A written report is provided to the student and a copy is placed in his or her division file.

Probational Status
M.A. and Ph.D. students who earn an overall g.p.a. lower than 3.00 are notified in writing of their probational status. Students on probational status have two consecutive sessions to raise their grade-point average to the established standard. If that requirement is not met, the student may be removed from the program. Each student is allowed one probational status during his or her program of study.

Application
Application materials are available on the division’s web site, or from the division’s office.

Applications must be complete before they can be reviewed. Applicants are responsible for providing a complete application dossier; to check on whether an application dossier is complete, contact the College of Education Office of Teacher Education and Student Services.

Application forms are available from the secretary of the Division of Counseling, Rehabilitation, and Student Development.

Applicants are notified in writing after admission applications have been reviewed. Applicants who are accepted must reply in writing in order to maintain their admission status.

Financial Support
Depending on federal funding, graduate training fellowships may be available for M.A. and Ph.D. students entering rehabilitation counseling through the Rehabilitation Services Administration’s Scholars Program. Many other graduate students in the Division of Counseling, Rehabilitation, and Student Development hold a wide variety of graduate assistantships. For example, many of the University’s student service units award part-time assistantships to graduate students in the division. Applications for assistantships should contact the division or the coordinator of the particular graduate program they plan to enter.

Applicants seeking fellowships or assistantships should complete their applications as early as possible.

Facilities
In addition to the counseling suite on campus, which serves as a laboratory for training, a wide variety of supervised clinical experiences are available in community agencies, schools, and colleges, as well as throughout the University. Internships may be completed in approved sites nationwide.

Courses
07C:030 Belin-Blank Center First-Year Seminar 1 s.h.
Presentations and discussions by University resource experts and Belin-Blank Center staff. Prerequisite: Belin-Blank Center student.

07C:081 Making a Vocational-Educational Choice 2 s.h.
Vocational decision-making process, self-evaluation, exploration of the world of work, for students who are uncertain about their educational and vocational goals.

07C:112 Human Sexuality 1-3 s.h.
Physiological and psychological aspects of human sexuality. Same as 042:112, 096:112.

07C:119 Family Issues in Giftedness 1 s.h.
Family dynamics and issues that arise when one or more children are identified as gifted; parent/child, sibling, school/family relationships.

07C:120 Psychology of Giftedness 3 s.h.
Theories of learning, child development, motivation; issues unique to gifted education. Same as 07P:120.

07C:121 Assessment of Giftedness and Academic Talent 3 s.h.
Interpretation of standardized tests and other measurement instruments used to identify academic talent and program effectively for grades K-12; ability, aptitude, achievement tests; current issues in the uses of various instruments. Same as 07P:121.

07C:123 Gender Issues and Giftedness 1 s.h.
Effect of gender on development of giftedness; differential needs of girls, boys; strategies for effective teaching, gender equity.

07C:124 Ethnic and Cultural Issues and Giftedness 1 s.h.
Effect of ethnicity and culture on development of giftedness; special needs of Black, Hispanic, Native American, and Asian gifted students; strategies for identification, programming.

07C:125 Counseling and Psychological Needs of the Gifted 1 s.h.
Psychological aspects of giftedness, counseling techniques appropriate for gifted children, adolescents; socio-emotional concerns, career development, underachievement. Same as 07P:125.

07C:126 Cognitive and Affective Needs of Underachieving Gifted 1 s.h.
Diagnostic strategy for identifying types of underachievement, teaching and counseling interventions appropriate for each. Same as 07P:126.

07C:127 Research and Theory in Talent/Giftedness 1 s.h.
Biennial research symposium. Same as 07P:127.

07C:128 Advanced Leadership Seminar in Gifted Education 1 s.h.
Development of administrative policies and programming based on empirical research; for experienced leaders in gifted education.

07C:129 Creativity: Issues and Applications in Gifted Education 1 s.h.
Theories that underpin contemporary definitions of creativity; instruments developed to measure creativity; active in the school environment that enhance or inhibit student creativity. Same as 07P:129.

07C:137 Introduction to Educating Gifted Students 3 s.h.
Fundamental issues such as curriculum, counseling, family issues, gender and minority issues. Same as 07U:137.

07C:145 Marriage and Family Interaction 3 s.h.
Contemporary American marriage, family relationships; mate selection.

07C:162 Introduction to Marriage and Family Counseling and Psychotherapy 3 s.h.
Evolution of the family therapy movement and issues related to functional and dysfunctional family systems; significant models of family therapy and specific techniques.

07C:178 Microcounseling 1-3 s.h.
Basic skills of listening, responding, empathy, focus; advanced skills of meaning, confrontation, reframing, directives, action skills.

07C:180 Topical Seminar for Helping Professionals 1-3 s.h.
Topics for the continuing education of counselors and related professionals.

07C:182 Workshop for Helping Professionals 1-2 s.h.
One-week workshop; students choose a topic for community practitioners working with or interested in counseling individuals, groups, families, organizations.

07C:185 Introduction to Substance Abuse 3 s.h.
Theories of addiction and pharmacology of psychoactive drugs; legal, familial, biological, multicultural, historical issues related to substance use and misuse.

07C:187 Introduction to Assistive Technology 3 s.h.
How assistive technology can be used for attainment of goals in education or work. Same as 07I:187.

07C:188 Practicum in Teaching and Curriculum Development in Gifted Education 1-6 s.h.
Experience in developing course materials for classes offered through the Belin Center. Same as 07E:188, 07I:188, 07J:188.

07C:190 Group Processes for Related Professions 3 s.h.
Small group procedures for personal and organizational development in educational settings; discussions of theoretical and ethical issues, multicultural considerations, and research findings supplemented with demonstrations; participation in a personal growth group.

07C:193 Individual Instruction—Undergraduate 1 s.h.
Prerequisite: consent of instructor.

07C:199 Counseling for Related Professions 3 s.h.
Counseling theories and techniques; ethical and multicultural considerations; small group discussions, demonstrations, lecture.

07C:200 Professional School Counseling 3 s.h.
Professional identity of school counselors, K-12 school counseling program delivery systems, legal and ethical issues. Prerequisite: admission to school counseling program or consent of instructor.

07C:202 Introduction to Group Counseling 3 s.h.
Research, theory, ethics, planning, and practice in group counseling; leadership styles and multicultural considerations; group participation. Prerequisite: counseling, rehabilitation, and student development major or consent of instructor.

07C:203 Career Guidance and Job Placement 3 s.h.
Preparation for counselors and students in allied professions; career development concepts and theories, family and work, career counseling goals and objectives, exemplary techniques and materials, career program planning, evaluation procedures. Prerequisite: counseling, rehabilitation, and student development major or consent of instructor.

07C:210 Rehabilitation Client Assessment 3 s.h.
Process and practice of assessing persons with disabilities for rehabilitation plan development and decision making, multicultural and ethical considerations.

07C:216 Group Leadership in Human Sexuality 0-3 s.h.
Repeatable. Same as 042:216, 090:216.

07C:221 Theories of Counseling and Human Development Across the Life Span 3 s.h.
Philosophical bases, ethical considerations, processes, issues, multicultural and life-span developmental considerations in counseling theories and techniques. Prerequisite: M.A. major in counseling, rehabilitation, and student development or consent of instructor.

07C:222 Counseling Children and Adolescents in Schools 3 s.h.
Theory and practice of school-based counseling interventions; child and adolescent development; prevention, special topics. Prerequisite: 07C:221 or 042:278 or consent of instructor.

07C:230 School Counseling Program Leadership and Management 3 s.h.
Comprehensive K-12 school counseling program components and structures; program leadership, planning, accountability;
07C:237 Seminar in Gifted Education 2-3 s.h.
Teaching and counseling needs of gifted students K-12, intensive 10-day residential program. Prerequisites: work as teacher with Belin Fellowship and consent of instructor.

07C:238 Advanced Seminar in Gifted Education 1 s.h.
Supervisory, administrative, and research issues; fellowship for seminar participants. Prerequisites: 07C:237 and consent of instructor.

07C:241 Introduction to Rehabilitation Counseling and Case Management 3 s.h.
Historical, philosophical, legislative, societal, and multicultural overview of rehabilitation process and practice; roles of rehabilitation professionals, nature of rehabilitation agencies, resources, contemporary issues and ethics.

07C:247 Medical Aspects of Disability 3 s.h.
Medical evaluation as part of the rehabilitation process; body systems, medical terminology, medical description of disabilities; functional limitations; projection of potential for rehabilitation applied to planning and placement.

07C:248 Diagnosis and Treatment Planning for Psychiatric Rehabilitation 3 s.h.
Psychiatric conditions, their diagnostic criteria, treatment planning considerations and outcomes; medical and psychiatric rehabilitation considerations, interrelationships in providing services to persons with psychiatric disabilities; functional assessment and client-driven rehabilitation planning for community reintegration. Prerequisites: counseling, social stimulation, and student development major or consent of instructor.

07C:250 Multiculturalism in Helping Professions 3 s.h.
Theory and application of multicultural competency in the helping professions; ethical treatment of clients in the context of a multicultural diverse society; knowledge, skill, self-awareness; components relevant for helping practitioners.

07C:254 Appraisal in Counseling 3 s.h.
Aptitude, interest, personality tests used for assessment in counseling; laboratory practice in test administration, scoring, interpretation, reporting, ethical and multicultural considerations; test procedures such as behavior assessment and personal documents. Prerequisite: 07P:143 or equivalent.

07C:255 Vocational Psychology 3 s.h.
Major concepts and research evidence about life-span vocational behavior; theories of vocational choice, adjustment, development in a multicultural world.

07C:262 Marriage and Family Counseling and Psychotherapy 3 s.h.
Introduction to counseling theory, ethics, and techniques as applied to problems of marriage and the family over the life span; multicultural considerations. Prerequisites: advanced graduate standing and consent of instructor. Recommended: 07C:178 and 07C:221.

07C:263 Consultation Theory and Practice 2-3 s.h.
Analysis of various consultation models, such as behavioral and mental health, ethical and multicultural considerations. Same as 07P:263, 07W:263.

07C:264 Concepts of Addiction, Risk Behavior, and Prevention 3 s.h.
Addictive behavior, high-risk behaviors, youth vulnerable to risk, models of prevention, drug classification, perspectives of risk from a developmental perspective, models of community and school-based prevention and intervention; individual and environmental factors that contribute to onset, escalation, and maintenance of problem behaviors, with focus on multicultural and diversity issues.

07C:265 Intervention and Assessment of Addictive Disorders 3 s.h.
Substance abuse, smoking, eating, and gambling behaviors; approaches relevant to acute interventions and long-term maintenance, with focus on community and community-based perspectives, assessment instruments.

07C:266 Issues in Addictions Treatment 3 s.h.
Issues relevant to specific populations (e.g., psychiatric disability, genitally handicapped, gay/lesbian/heterosexual/marginalized populations, college students, people with disabilities).

07C:270 Issues and Ethics in Counseling 3 s.h.
Ethical standards and decision making, current issues, and legal and multicultural considerations for counseling in agencies and schools; emphasis on professional practice.

07C:278 Applied Microcounseling 3 s.h.
Development of basic and advanced counseling skills; preparation for work in education and community settings.

07C:280 Topical Seminar in CRSD 3 s.h.
Special topics designed with contemporary problems of concern to counselors in specific settings. Repeatable.

07C:281 Introduction to Computer Technology in the Helping Professions 1 s.h.
Prerequisite: M.A. candidacy in counseling, rehabilitation, and student development or consent of instructor.

07C:287 Preparactum and Case Management in Substance Abuse Counseling 3 s.h.
Practical issues in counseling; case conceptualization, documentation, and management; managed care; ethical, multicultural, legal issues; service learning component.

07C:293 Individual Intervention—Graduate 1 s.h.
Prerequisite: consent of instructor.

07C:300 Practicum in School Counseling 3 s.h.
Supervised experience counseling and consulting in elementary and secondary settings. Prerequisite: completion of school counseling core courses.

07C:311 Practicum in Counseling and Psychological Services for Gifted Students 1-6 s.h.
For graduate students who have had course work in counseling education, counseling psychology, school psychology, educational psychology, or related fields. Prerequisites: 07C:178 or equivalent and consent of instructor. Same as 07P:311.

07C:320 Internship in K-12 School Counseling 5-6 s.h.
Half or full-time supervised placement in elementary and/or secondary school settings; performance of tasks, responsibilities of a school counselor. Prerequisite: 07C:300.

07C:321 Internship in Elementary School Counseling 3 s.h.
Supervised placement in an elementary school setting, performance of tasks, responsibilities of an elementary school counselor. Prerequisite: 07C:300.

07C:322 Internship in Secondary School Counseling 3 s.h.
Supervised placement in a secondary school setting; performance of tasks, responsibilities of a secondary school counselor. Prerequisite: 07C:300.

07C:330 Introduction to Student Services 3 s.h.
Foundations of student affairs work; overview of institutional cultures, legal issues, ethical principles, standards of practice in student affairs.

07C:331 College Students and Their Environments 2-3 s.h.
Characteristics of college students and issues they face; students' institutional, social, cultural environments; impact of environments on student learning, development.

07C:332 College Student Psychosocial and Identity Development 3 s.h.
Theoretical models of psychosocial and identity development in college students; interactions to student affairs work. Prerequisite: 07C:331 or equivalent.

07C:333 Practicum in Student Services 3 s.h.
Supervised experience in college student service agencies. Repeatable.

07C:344 College Student Learning and Cognitive Development 3 s.h.
Learning and development in college students; theoretical models of learning, cognitive development, moral development; applications to student affairs work. Prerequisite: 07C:331 or equivalent.

07C:345 Administration of Student Services 3 s.h.
Administrative structures and processes, contexts and principles of effective student services practice, research and assessment in student services. Prerequisite: 07C:330 or equivalent.

07C:346 Impact of College on Students 3 s.h.
Introduction to literature; career and economic returns, values and attitudes, learning and cognitive development; assessment and methodological issues of studying college outcomes. Prerequisites: 07B:206 or equivalent or consent of instructor.

07C:347 Administration Theory in Student Affairs 3 s.h.
Issues and problems in student affairs administration; theories of organization, administration, leadership. Prerequisite: 07C:335 or consent of instructor.

07C:358 Essentials of Qualitative Inquiry 3 s.h.
Principles, processes of qualitative research in education; methods of design, data collection and analysis, interpretation, trustworthy data. Prerequisites: 91L:1, introductory research course, and consent of instructor.

07C:359 Internship in College Counseling and Psychotherapy 3 s.h.
Experience in a community agency counseling individuals with disabilities, supervised by agency and University personnel. Prerequisite: 07C:349.

07C:365 Career Counseling 2-3 s.h.
Counseling to promote knowledge, skills, and awareness of effective and ethical counseling methods, and fundamental of case management. Prerequisites: 07C:221 and 07C:278.

07C:380 Practicum in College Teaching 1 s.h.
Supervised college teaching experience in core education courses; teaching in collaboration with faculty, observation and critique of teaching, participation in course planning and evaluation procedures; ethical and multicultural considerations. Prerequisites: graduate standing and consent of instructor.

07C:393 M.A. Thesis 3 s.h.
Prerequisite: consent of instructor.
Undergraduate degrees: B.A., B.S. (granted through College of Liberal Arts and Sciences)
Graduate degrees: M.A., M.A., M.S., Ph.D.
Web site: http://www.uiowa.edu/~coeci/

The division’s programs prepare graduates for positions in public schools, local and state education agencies, clinical settings, and institutions of higher education. All licensure programs are approved by the Iowa Department of Education. Undergraduate students pursuing a major in elementary education must meet the College of Liberal Arts and Sciences requirements for the B.A. or B.S. degree.

Licensure and Teacher Education, Certification

Before taking required professional education courses, undergraduate students must be admitted to the Teacher Education Program (TEP). The application for admission should be submitted to the College of Education Office of Teacher Education and Student Services. Deadlines for application are March 15, June 15, and October 15 for admission to restricted course work in the following semester. Each program reviews applications and chooses a limited number of students for admission.

In order to be considered for admission, students must have completed a minimum of 30 s.h. of course work at the time of application with a University of Iowa cumulative g.p.a. of at least 2.70. For some subject areas, applicants must meet additional criteria. A limited number of applicants are accepted into each Teacher Education Program, so a 2.70 g.p.a. does not ensure admission. Admission decisions are based on grade-point average in the major and other criteria relevant to teaching success.

The application process includes submission of an application form, a writing sample, two letters of recommendation, and an Iowa criminal history check request form. Applicants are required to submit PRAXIS I test scores in mathematics, reading, and writing. Scores from either the computer-based tests (CBT) or the Pre-Professional Skills Tests (PPST) are accepted. Applicants must have a composite score of at least 522, with a minimum score of 170 on any single portion of the test. Applicants must also submit verification of completion of a 10-hour volunteer experience in a K-12 classroom setting. If at any time after admission a student’s University of Iowa and/or cumulative g.p.a. falls below 2.70, or if a student fails to maintain a cumulative g.p.a. of 2.70.0, students who do not attain a 2.70 g.p.a. during the probationary semester are dropped from the TEP. Students should consult a College of Education advisor in their program area, or the Office of Teacher Education and Student Services for more information about admission criteria.

Graduate students who apply to the Graduate College for a licensure program must apply separately for admission to the Teacher Education Program. Deadlines for application to either program are June 15, October 15, or March 15 for admission to restricted course work in the following semester. Graduate and postbaccalaureate students may submit GRE scores instead of PRAXIS I scores.

A limited number of applicants are accepted into each TEP program area, so meeting the Graduate College admission requirements does not ensure admission. Admission decisions are based on grade-point average in the undergraduate major and other criteria relevant to teaching. Upon admission to the TEP, students are assigned an education advisor.

Admission to Student Teaching

Admission to the student teaching semester requires a separate application. Applications must be submitted one year before the student teaching semester. Applicants’ credentials and academic and professional progress are reviewed to ensure that the student is qualified for placement in the profession. Verification that the student meets all specific program area requirements is made when the student applies for student teaching.

Students should consult their education advisor or the Office of Teacher Education and Student Services for more information about the admission process and requirements for student teaching in specific licensure programs.

Elementary Education

FOUNDATION COURSES

These four courses must be completed before methods courses ("Block A"/"B" below) are begun.

07E:090 Orientation to Elementary Education 1 s.h.
07E:100 Foundations of Education 3 s.h.
07E:102/07S:102 Technology in the Classroom 2 s.h.
07P:075 Educational Psychology Measurement 3 s.h.

METHODS COURSES

Block A

Three courses taken concurrently:
07E:123 Reading and Responding to Children’s Literature 2 s.h.
07E:160 Methods: Elementary School Language Arts 3 s.h.
07E:164 Methods: Elementary School Reading 3 s.h.

Block B

Three courses taken concurrently:
07E:161 Methods: Elementary School Social Studies 3 s.h.
07E:162 Methods: Elementary School Science 3 s.h.
07E:163 Methods: Elementary School Mathematics 3 s.h.
07E:120 Methods and Materials: Music for the Classroom Teacher 2 s.h.
07E:122 Methods and Materials: Art for the Classroom Teacher 2 s.h.
07E:127 Physical Education and Health for Elementary Teachers 2 s.h.
Methods Practicum

Students complete a semester-length practicum in their area of specialization after completing the appropriate methods block.

07E:172 Reading Instruction: Teaching Practicum 4 s.h.
07E:174 Elementary Education: Practicum 4 s.h.

OTHER REQUIREMENTS

07B:180 Human Relations for the Classroom Teacher 3 s.h.
07U:100 Foundations of Special Education 3 s.h.

One college-level mathematics course (22M:001, 22M:002, and 22M:003 do not apply)

AREA OF SPECIALIZATION

A minimum of 24 s.h. must be completed in one of the following areas of specialization: art, early childhood, English language arts, ESL, hearing impaired, history, mathematics, music, reading, science, or social science.

The special education Strategist I: Mild/Moderate (K-6) area of specialization and the early childhood with special education (PK-3) area of specialization require separate admission. Applicants must already be admitted to the elementary education program. Applications for the specialization program are due July 15.

Twenty-four students are admitted each year.

Copies of the requirements for each area of specialization are available in the Division of Curriculum and Instruction office. Courses in the area of specialization may be taken pass/nonpass if they are offered with the pass/nonpass option.

STUDENT TEACHING

A minimum of 14 s.h. of student teaching is required for students seeking initial certification.

07E:170 Classroom Management 2 s.h.
07E:190 Supervised Teaching in the Elementary School: Interactive Phase 4, 7 s.h.
07E:191 Supervised Teaching in the Elementary School: Pre- and Post-Active Phase 3, 7 s.h.
07E:192 Special Area Student Teaching 3 s.h.

The liberal arts and sciences and elementary requirements total approximately 113-139 s.h. Students who meet or test out of the rhetoric, foreign language, mathematics, and other liberal arts and sciences General Education Program requirements may be able to satisfy their program requirements in as few as 113 s.h.

Transfer students must complete 07E:090; 07E:102; two courses chosen from 07E:123, 07E:160, 07E:161, 07E:162, 07E:163, and 07E:164 at The University of Iowa; and a practicum before they student teach. Transfer students must follow the normal application procedures. In addition, they are asked to complete a disclosure statement describing all practicum experiences they have taken at other institutions and a release statement allowing the College of Education’s Office of Teacher Education and Student Services to contact all institutions where they have done professional preparatory work.

ADDING ENDORSEMENTS TO LICENSES

The undergraduate elementary education program is designed specifically to prepare students to teach kindergarten through sixth grade. As an addition to the K-6 Iowa endorsement, students may complete requirements for an Iowa subject area endorsement (see “Area of Specialization,” above). This option is not open to students who choose the Strategist I area of specialization.

The University of Iowa also offers an added endorsement in talented and gifted education.

Secondary Education

Undergraduate students seeking secondary school licensure/certification are degree candidates in the College of Liberal Arts and Sciences and must complete the requirements for the Bachelor of Arts, Bachelor of Science, Bachelor of Music, or Bachelor of Fine Arts degrees.

Graduate students may be admitted to a program leading to teacher licensure/certification as “certification only” candidates in the Graduate College. They are subject to all policies, rules, and regulations of that college. Eligible graduate students also may complete teacher licensure/certification by pursuing an M.A.T. in English education, foreign language education, or science education, or an M.A. in social studies (program B).

Licensure/certification requires a major of at least 30 s.h. of course work in a subject area taught in the secondary school. Course requirements for each major are available in the Division of Curriculum and Instruction office. Candidates for secondary school teaching licensure/certification also may receive approval to teach in additional subject areas by completing an approved program of 12-24 s.h. of course work in those areas.

Secondary school teacher preparation programs are provided in the following areas.

Art
  *Coaching English
  *English as a second language
  *Foreign languages—Chinese, French, German, Italian, Japanese, Latin, Russian, Spanish
  *Hearing impaired
  *Journalism

Mathematics
  *Music

Science, including *physical science, biological sciences, chemistry, *general science, physics, earth science, and 9-12 all science

Social science, including anthropology, economics, geography, history, political science, psychology, and sociology

*Talented and gifted

*Available as an additional approval area only; major in another subject matter area is required for licensure.

An Iowa secondary teaching license qualifies holders to teach in grades 7-12. Students planning to teach art or music typically complete a program that prepares them for both elementary- and secondary-level licensure.

Secondary teacher preparation programs in mathematics and foreign language also offer a program that leads to licensure/certification as a subject matter specialist in grades K-6. This K-6 licensure/certification is available only in the same subject area as the secondary certification. Candidates can obtain more information and the name of an adviser from the Division of Curriculum and Instruction office.

REQUIREMENTS

Undergraduate candidates for licensure/certification to teach in secondary schools must complete the following requirements, in addition to the requirements in their major.

One introduction to teaching course 2-3 s.h.
07E:102/07S:102 Technology in the Classroom 3 s.h.
07E:180 Human Relations for the Classroom Teacher 3 s.h.
07S:100 Foundations of Education 3 s.h.
07S:190 Orientation to Secondary Education 3 s.h.
07S:195 Teaching Reading in Secondary Content Areas 1 s.h.
07U:100 Foundations of Special Education 3 s.h.

One or more methods of teaching courses in the major field 3-9 s.h.

One college-level mathematics course (22M:001, 22M:002, and 22M:003 do not apply)

Student teaching 12 s.h.

Students must complete the methods courses in their major teaching fields before student teaching.

For initial licensure in all subject areas, student teaching must be an all-day, full-semester experience. Most students are placed in a district within a 60-mile radius of Iowa City. Placements outside this area require special approval and are considered on an individual basis. Special programs provide experience in districts with diverse populations, including Aldine, Texas (Houston area); Adams County, Colorado (Denver area); Rialto, California; and Clark County, Nevada (Las Vegas area). In most program areas, students also may apply to student teach in international sites for the second half of the semester.

Additional information about options for student teaching and application procedures is available from the Office of Teacher Education and Student Services. Applications for student teaching must be submitted during the calendar year before the student teaching semester. The deadline is November 15 for students planning to student teach the following fall semester and February 15 for students planning to student teach the following spring semester.

TRANSFER STUDENTS

Transfer students must complete 07S:102, 07S:190, 07S:195, appropriate methods classes, and a practicum at The University of Iowa before...
they student teach. Transfer students must follow the normal application procedures. In addition, they are asked to complete a disclosure statement describing all practicum experiences they have taken at other institutions and a release statement allowing the College of Education's Office of Teacher Education and Student Services to contact all institutions where they have done professional preparatory work.

Special Education
Students may be admitted to the Graduate College for the purpose of obtaining a master's degree in special education. This degree typically includes certification in an area or areas selected by the student. See "Admission" under "Special Education."

Graduate Programs

Early Childhood Education

M.A. in Early Childhood Education
The Master of Arts program in early childhood education is designed to prepare persons to administer programs and/or deliver education and care to children from infancy through the early primary grades in private or public settings, or to serve as early childhood consultants or community college instructors. It is offered in thesis and nonthesis options.

ADMISSION
Students must meet the general admission requirements of the Graduate College and have an undergraduate g.p.a. of at least 3.00. Students must hold a valid prekindergarten/kindergarten or elementary endorsement or equivalent and must have at least one year of direct experience working with young children. Course work completed 10 or more years before admission does not count toward the M.A. requirements.

Students whose first language is not English must have a TOEFL score of at least 550 (on the paper-based test) to be eligible for admission; those with scores of 550 to 600 must complete an English evaluation before registering for courses. Course work recommended by English proficiency evaluators must be completed before conditional status can be changed. English proficiency course credit may not be applied toward the master's degree.

REQUIREMENTS
The thesis option requires a minimum of 30 s.h. of credit; the nonthesis option requires 32 s.h.

FOUNDATION COURSES
07E:187 Philosophy and Administration of Early Childhood Programs 3 s.h.
07E:204 Early Literacy Development and Instruction 3 s.h.
07E:267 Inquiry-Based Curriculum Development in Early Childhood and Elementary Classrooms 3 s.h.
07E:268 Curriculum Development for Young Children 3 s.h.

07B:120 Teaching in a Culturally Diverse Society 3 s.h.
or
07U:148 Adaptation for Students with Multiple Disabilities 3 s.h.

RELATED COURSES
One of these (or an approved substitute):
07P:106 Child Development 3 s.h.
031:114 Cognitive Development of Children 3 s.h.

07E:114 Parent-Child Relationships 3 s.h.
07E:134 Parent-Teacher Communication 3 s.h.

AREAS OF SPECIALIZATION
Curriculum
Students must complete at least 11 s.h. of credit in courses chosen from one or two content areas, such as reading and/or language arts, mathematics, science, social studies, music, art, and children's literature.

Administration and Social Agencies
Total of 11 s.h. from these:
07B:154 Education, Race, and Ethnicity 2-3 s.h.
07B:171 The Community College 2-3 s.h.
07B:206 Research Process and Design 3 s.h.
07B:285 School and Community Relationships 3 s.h.
07S:186 Curriculum Foundations 2-3 s.h.
042:129 Substance Use and Abuse 3 s.h.
042:143 Social Welfare Policy and Practice 3 s.h.
042:196 Family Violence 2-3 s.h.
042:220 Family Law 3 s.h.

Children with Diverse Abilities
Total of 11 s.h. from these:
07C:120 Psychology of Giftedness 3 s.h.
07U:100 Foundations of Special Education 3 s.h.
07U:140 Characteristics of Disabilities 3 s.h.
07U:148 Adaptations for Students with Multiple Disabilities 3 s.h.
07U:230 Behavioral and Social Interventions 3 s.h.
07U:231 Strategist I: Methods 4 s.h.

Family Support
Total of 11 s.h. from these:
07C:112 Human Sexuality 1-3 s.h.
07C:119 Family Issues in Giftedness 1 s.h.
07C:145 Marriage and Family Interaction 3 s.h.
07C:178 Microcounseling 1, 3 s.h.
07C:190 Counseling for Related Professions 3 s.h.
07E:114 Parent-Child Relationships 3 s.h.
07E:134 Parent-Teacher Communication 1-3 s.h.
07P:136 Home/School/Community Partnerships 3 s.h.
02B:130 Human Nutrition 3 s.h.
034:061 The American Family 3 s.h.
034:162 Work and Family Institutions 3 s.h.
036:147 Family Communication 3 s.h.

Multicultural Issues
Total of 11 s.h. from these:
07B:120 Teaching in a Culturally Diverse Society 3 s.h.
07B:123 History of Ethnic/Minority Education 3 s.h.
07B:154 Education, Race, and Ethnicity 3 s.h.
07B:180 Human Relations for the Classroom Teacher 3 s.h.
07C:124 Ethnic and Cultural Issues and Giftedness 1 s.h.
07C:250 Multiculturalism in Helping Professions 3 s.h.
07E:175 Linguistic Diversity in the Classroom 3 s.h.
07E:183 Second Language Classroom Learning 3 s.h.
07U:133 The Culturally Different in Diverse Settings 3 s.h.
035:124 Introduction to Bilingualism 3 s.h.
129:124 Black Culture and Experience 3 s.h.

Thesis/Research
07P:143 Introduction to Statistical Methods 3 s.h.
07P:150 Introduction to Educational Measurement 3-4 s.h.

One of these:
07E:392 Field Service Project 3 s.h.
07E:393 M.A. Thesis in Early Childhood and Elementary Education 2 s.h.

COMPREHENSIVE EXAMINATION
All students take one written examination in general early childhood education. Nonthesis students take a second written examination in their elected area of specialization. Thesis students take a second, oral examination related to their thesis or field-service project.

Note: This program does not lead to the Iowa endorsement for teaching prekindergarten/kindergarten or to any other teaching endorsement, with the exception of postsecondary licensure/certification when all the required courses in that area of specialization have been successfully completed.

Elementary Education

M.A. in Elementary Education
This program is designed to prepare master’s degree candidates in elementary education to serve as team leaders, grade level or subject area supervisors, curriculum consultants, or master teachers.

ADMISSION
Admission requirements are the same as those established by the Graduate College. In addition, applicants must have completed an undergraduate program of teacher preparation in either early childhood or elementary education. Graduate students who have not completed an undergraduate program in elementary education must be admitted initially as “certification only” students.

REQUIREMENTS
The thesis option requires 30 s.h. of credit, the nonthesis option requires 32 s.h. Students must take 24 s.h. in University of Iowa courses and complete 8 s.h. on campus. Course work completed 10 or more years before admission does not count toward the M.A. requirements.
Elementary Education Graduate Core
All of these (9 s.h.):
07B:120 Teaching in a Culturally Diverse Society (or equivalent approved by adviser) 3 s.h.
07E:267 Inquiry-Based Curriculum Development in Early Childhood and Elementary Education 3 s.h.
07E:300 Design and Organization of Curriculum 3 s.h.

Instructional Cluster
Students take three courses (9 s.h.) that deal with instructional issues in the elementary classroom drawn from one or more of the following areas: art education, music education, social studies education, science education, math education, special education, other acknowledged specialization areas. Students must choose courses outside their area of specialization.

Specialization
Students take three courses (9 s.h.) in their area of specialization, chosen in consultation with their adviser.

Electives
Students choose 6 s.h. of elective course work.

COMPREHENSIVE EXAMINATION
Students are expected to pass a comprehensive exam associated with the course work in the graduate core, course work in the area of specialization, and any additional course work deemed appropriate by their adviser.

M.A. in Developmental Reading
This degree program prepares graduate students for positions as reading specialists in kindergarten and grades 1-12. The required course work develops the skills, knowledge, and competence needed for supervisory, curricular, and remedial teaching positions in reading. The program also builds a background in reading for students who want to specialize further in the area and eventually to teach and/or conduct research in a college or university.

Successful completion of this program, combined with one year of successful teaching experience that includes the teaching of reading as a significant part of the responsibility, qualifies the student for certification as a reading specialist.

ADMISSION
Students must meet the general requirements of the Graduate College, have an undergraduate g.p.a. of at least 3.00, hold an early childhood, elementary, or secondary school teaching certificate, and show evidence of completing two years of successful teaching experience.

REQUIREMENTS
A minimum of 33 s.h. with thesis, or 35 s.h. without thesis, is required. The following courses are required of all candidates.
07E:171 Reading and Writing: Processes and Instruction 3 s.h.
07E:264 Early Literacy Development and Instruction 2-3 s.h.
07E:265 Reading and Writing Across Intermediate Grades 3 s.h.
07E:271 Advanced Reading Clinic Techniques 2-3 s.h.
07E:272 Advanced Reading Clinic Practicum 2-3 s.h.
07E:308 Seminar: Research and Current Issues (Reading) 3 s.h.
07S:194 Methods: High School Reading 2-3 s.h.
One of these:
07P:106 Child Development 3 s.h.
07P:133 The Adolescent and Young Adult 3 s.h.
07P:200 Educational Psychology 3 s.h.
One of these:
07P:150 Introduction to Educational Measurement 3 s.h.
07U:238 Assessment of Learning Difficulties 3 s.h.
An approved literacy assessment course 3 s.h.

One of these:
07E:267 Inquiry-Based Curriculum Development in Early Childhood and Elementary Classrooms 3 s.h.
07E:300 Design and Organization of Curriculum 3 s.h.
07S:186 Curriculum Foundations 2-3 s.h.
07S:291 Secondary School Curriculum 2-3 s.h.
One of these:
07B:383 Supervision and Evaluation 3 s.h.
07E:280 Supervision of Instruction and Staff Development 2-3 s.h.
07E:365 Reading Clinic: Supervision and Staff Development Thesis (if relevant)—one of these:
07E:393 M.A. Thesis in Early Childhood and Elementary Education 3 s.h.
07S:393 Master’s Degree Thesis 3 s.h.
Students, in consultation with their adviser, may select the remaining hours as electives from areas such as curriculum, supervision, language arts, testing and evaluation, linguistics, or speech pathology.

Students take six hours of comprehensive examinations. Each three-hour examination is based on some aspect of reading or literacy. With the agreement of the adviser and the student’s committee, a comprehensive project may be substituted for the written examination in one or both areas.

M.S. in Elementary Science Education
The Master of Science program in elementary science prepares master’s degree candidates to serve as team or departmental science specialists. The program (38 s.h.) may be taken with or without thesis.

ADMISSION
Admission requirements are the same as those established by the Graduate College. In addition, applicants must have completed an undergraduate program of teacher preparation in elementary education.

REQUIREMENTS
The following courses in science education are required of all candidates.
07E:255 Science Education: Issues, History, and Rationale 3 s.h.
07E:256 Science Education: The Nature of Science 3 s.h.
07E:257 Science Education: Teaching, Learning, and Curriculum Models 3 s.h.
07E:258 Science Education: Research Models and Conceptual Schemes 3 s.h.
07E:350 Seminar: Science Education 0-2 s.h.

The science specialization (19 s.h.) includes science courses (16 s.h.) that are selected by the candidate in consultation with the adviser. A series of application courses (097:102 Societal and Educational Applications of Earth Sciences and Environmental Sciences, 097:103 Societal and Educational Applications of Biological Sciences, and 097:105 Societal and Educational Applications of Physical Sciences) are an integral component of the science courses. Candidates who have not taken comparable courses are expected to take two application courses.

Students who elect the nonthesis program also complete a study (6 s.h.) in an integrated group of supporting courses selected, in consultation with the adviser, from a science, an applied science, or education.

Students who elect a thesis program complete masters thesis credit (6 s.h. of 07E:393). All candidates for the Master of Science must satisfy the requirements for a basic science endorsement as outlined in the October 1988 Iowa Certification Rules.

Ph.D. in Elementary Education
The doctoral program in elementary education prepares students for college and university teaching and research positions in elementary education, and for research, curriculum, supervisory, or administrative positions in public school systems and government educational agencies.

ADMISSION
Application for admission should be submitted by January 4 and August 4 each year. Application materials should include a statement of purpose explaining the applicant’s reasons for pursuing graduate study and describing his or her future goals; transcripts of all undergraduate and graduate study and describing his or her future goals; transcripts of all undergraduate and graduate course work; Graduate Record Exam scores; a sample of academic writing; and three letters of recommendation.

The required grade-point average for continuation in the program is that prescribed by the Graduate College.

REQUIREMENTS
The program requires a minimum of 90 s.h. of credit, including 10-15 s.h. of dissertation credit. Each student prepares an individual plan of study in consultation with an adviser. The final plan must be approved by the adviser and the division chair.

Ph.D. Core
All of the following are required (15 s.h.).
Foundations component:
07E:304 Schooling in the United States 3 s.h.
07S:333 Seminar on Teacher Education 3 s.h.
Research component:
07P:202 Understanding Educational Research 3 s.h.
Two other research courses chosen in consultation with adviser 6 s.h.

**Elementary Education Graduate Core**

All of these (9 s.h.):

- 07B:120 Teaching in a Culturally Diverse Society (or equivalent approved by adviser) 3 s.h.
- 07E:267 Inquiry-Based Curriculum Development in Early Childhood and Elementary Education 3 s.h.
- 07E:300 Design and Organization of the Curriculum 3 s.h.

**Instructional Cluster**

Students take two courses (6 s.h.) that deal with instructional issues in the elementary classroom drawn from one or more of the following areas: art education, music education, social studies education, science education, math education, special education, another acknowledged area of specialization. Students must choose courses outside their area of specialization.

**Specialization**

Students take four courses (12 s.h.) in their area of specialization, chosen in consultation with their adviser.

**Electives**

Students choose 6 s.h. of elective course work.

**Dissertation**

Dissertation work ranges from 10 to 15 s.h.

**Comprehensive Examination**

Students are expected to pass a comprehensive exam associated with the course work in the Ph.D. core, course work in the instructional cluster, and course work in the area of specialization.

**Ph.D. in Language, Literacy, and Culture**

The program in language, literacy, and culture offers a Ph.D. that brings together scholarly traditions and contemporary theory in literacy and cultural studies. Course work provides both a broad background in relevant theoretic and research literature and opportunities to conduct original studies that explore the nature of literacy practices both in and out of school. Graduates secure careers in university and college teaching, research, curriculum development, and administration of literacy programs.

**Admission**

Applications for admission and for financial aid are reviewed by January 10 each year. Applicants should have at least two years of experience teaching or tutoring language or literacy (reading, writing, English, language arts) and should have earned a master's degree or have completed a significant amount of graduate course work in a literacy-related field. Application materials should include a statement of purpose explaining the applicant's reasons for pursuing graduate study and describing his or her future goals; transcripts of all undergraduate and graduate course work; Graduate Record Exam scores; a sample of academic writing; and three letters of recommendation.

**Requirements**

The program requires a minimum of 78 s.h. of approved course work beyond the B.A., plus 10-12 s.h. of dissertation credit. Course work includes an introductory seminar in language, literacy, and culture; at least 9 s.h. of additional doctoral seminars in the program; 6 s.h. of a required sequence of courses in curriculum and instruction; at least 6 s.h. of course work in research methodology; and 9-12 s.h. of graduate course work taken outside the Division of Curriculum and Instruction (3 s.h. of that taken outside the College of Education).

As students near the completion of their course work, they identify several key strands for review and synthesis. With guidance from their advisers, students prepare for written and oral exams in two areas of literacy and submit a substantive issues paper, typically a report of an exploratory study or a review of research literature on a topic of special interest. They also design a syllabus for a literacy course and write a reflective commentary that demonstrates understanding of the relationship between theory and practice.

Following successful completion of all components of the comprehensive exam, students work with a faculty member to develop a proposal for a study that will make an original contribution to the understanding of some aspect of literacy. After the proposal has been approved, students conduct research and report their findings under the primary guidance of a dissertation chair. Detailed information on the Ph.D. in language, literacy, and culture is available on the college's web site.

**Secondary Education**

The Division of Curriculum and Instruction offers, or jointly administers with departments in the College of Liberal Arts and Sciences, advanced degree programs in the following fields of professional interest: art education, communication studies education, curriculum and supervision, developmental reading, English education, foreign language education, mathematics education, music education, science education, and social studies education.

In some fields, only master's-level programs are offered, whereas in other fields, educational specialist and Ph.D. degree programs also are offered. All degrees offered are listed below, grouped by program area.

**M.A. in Art Education**

The Master of Arts program is administered by the School of Art and Art History in cooperation with the College of Education. Students make application for admission to the School of Art and Art History. The program prepares college teachers and researchers in art education and supervisors of art in state departments of education and school systems. It also provides students with an opportunity to continue inquiry and creative work in art history and in studio.

**Ph.D. in Art Education**

The doctoral degree program is administered by the College of Education with the cooperation of the School of Art and Art History. Students make application for admission to the College of Education.

The program prepares college teachers and researchers in art education and supervisors of art in state departments of education and school systems. It also provides students with an opportunity to continue inquiry and creative work in art history and in studio.

**Admission**

Students must meet the general requirements for doctoral students in the Graduate College and have an M.A. in art education from The University of Iowa or an equivalent degree from an accredited degree-granting college or university. Application to the program must be accompanied by a representative portfolio of the candidate's work, consisting of eight slide reproductions of artwork and one example of written work. The written work may be a paper previously written for a course or it may be an original paper. Deficiencies in undergraduate art or courses recommended for teacher licensure/certification are evaluated following admission so that students can make up required course work concurrent with work for the degree. Candidates must meet Graduate College requirements for admission.

**Requirements**

M.A. candidates must complete the following.

**Studio and Art History**

Total of 18 s.h.: either 12 s.h. of studio art and 6 s.h. of art history, or 12 s.h. of art history and 6 s.h. of studio art.

**Art Education Seminars**

Total of 8 s.h. in 075:367 Seminar: Current Issues in Art Education.

**Additional Course Work**

Total of 12 s.h. to be specified after the student begins the program.

**Thesis**

Either a written or studio thesis (students who elect a studio thesis must pass M.A. clearance in the School of Art and Art History).

**Ph.D. in Art Education**

The doctoral degree program is administered by the College of Education with the cooperation of the School of Art and Art History. Students make application for admission to the College of Education.

The program prepares college teachers and researchers in art education and supervisors of art in state departments of education and school systems. It also provides students with an opportunity to continue inquiry and creative work in art history and in studio.

**Admission**

Applications must have completed the equivalent of the minimum course work in art required for the B.A. or B.F.A. degree in art from The University of Iowa, and a license/certificate to teach art. Applications must be accompanied by a representative portfolio of the candidate's work, consisting of eight slide reproductions of artwork and one example of written work. The written work may be a paper previously written for a course or it may be an original paper. Deficiencies in undergraduate art or courses recommended for teacher licensure/certification are evaluated following admission so that students can make up required course work concurrent with work for the degree. Candidates must meet Graduate College requirements for admission.

**Requirements**

M.A. candidates must complete the following.

**Studio and Art History**

Total of 18 s.h.: either 12 s.h. of studio art and 6 s.h. of art history, or 12 s.h. of art history and 6 s.h. of studio art.

**Art Education Seminars**

Total of 8 s.h. in 075:367 Seminar: Current Issues in Art Education.

**Additional Course Work**

Total of 12 s.h. to be specified after the student begins the program.

**Thesis**

Either a written or studio thesis (students who elect a studio thesis must pass M.A. clearance in the School of Art and Art History).

**Ph.D. in Art Education**

The doctoral degree program is administered by the College of Education with the cooperation of the School of Art and Art History. Students make application for admission to the College of Education.

The program prepares college teachers and researchers in art education and supervisors of art in state departments of education and school systems. It also provides students with an opportunity to continue inquiry and creative work in art history and in studio.

**Admission**

Students must meet the general requirements for doctoral students in the Graduate College and have an M.A. in art education from The University of Iowa or an equivalent degree from an accredited degree-granting college or university. Application to the program must be accompanied by a representative portfolio of the candidate’s work, consisting of 12 slide reproductions of artwork and two examples of written work. The written work may consist of papers previously written for a course or original papers. These should be submitted to the art education office.

In the case of course work deficiencies, students must register for pertinent courses. Two years of successful teaching experience in an elementary or secondary school is required prior to admission or completion of the doctoral program.
REQUIREMENTS

Students must complete at least 60 s.h. of graduate work beyond the M.A., planned with the adviser, including at least 15 s.h. in the School of Art and Art History, 15 s.h. in art education seminars, 15 s.h. in a related area (e.g., aesthetics, anthropology, higher education, early childhood education, psychology, sociology), and 15 s.h. in thesis and tool courses. Introduction to Research in Art Education (07E:306) is also required.

Effective fall 2004, students admitted to any Ph.D. program in the Division of Curriculum and Instruction must complete at least two of the following three core courses.

- 07E:304 Schoolling in the United States 3 s.h.
- 07P:202 Understanding Educational Research 3 s.h.
- 07S:333 Seminar on Teacher Education 3 s.h.

Students take both oral and written comprehensive examinations. The written examination consists of an in-depth research problem assigned by the examining committee, to be completed within 14 days. An oral examination on the project is then held (the written portion of the examination is not intended to relate directly to the dissertation proposal).

Students must satisfactorily complete a written dissertation that constitutes a contribution to scholarship, for at least 12 s.h. of credit. The student is expected to prepare a dissertation proposal and defend it before the dissertation committee. An oral examination on the dissertation is the Ph.D. final examination.

M.A. in Communication Studies Education

The program prepares teachers and supervisors of speech communication for secondary and postsecondary positions.

ADMISSION

Candidates must have a g.p.a. of at least 3.00. Candidates without prior academic background in speech communication may need to take additional courses beyond the minimum requirement. Application should be made to the Department of Communication Studies.

REQUIREMENTS

Students must complete a minimum of 30 s.h. of approved graduate courses, at least 24 of them at The University of Iowa, as follows.

- Two communication studies graduate courses in communication education
- Two graduate courses in a second division of communication studies
- Two graduate courses in a third division of communication studies
- 036:200 Introduction to Research and Teaching
- Three 200- or 300-level courses in communication studies
- Other courses recommended by the adviser and/or committee

Students must successfully complete a paper or project involving substantial scholarly investigation and writing, usually done in a seminar or independently under the direction of an adviser. The project or paper must be circulated to the committee with the comprehensive examination.

Students take a comprehensive examination consisting of three 2-hour segments to be defined and limited by the student and an adviser when the plan of study is prepared.

M.A. in Curriculum and Supervision

The program prepares teachers and administrators for positions as consultants, directors, and coordinators in curriculum development.

ADMISSION

Students must meet the general requirements of the Graduate College. Teaching experience is desirable.

REQUIREMENTS

Common Curriculum Core

Total of 12 s.h., as follows:
- 07E:180 Curriculum Foundations 3 s.h.
- 07E:300 Design and Organization of Curriculum 3 s.h.

Two of these:
- 07E:132/07S:132 Middle School Curriculum and Methods 3 s.h.
- 07E:304 Schoolling in the United States 3 s.h.
- 07S:291 Secondary School Curriculum 3 s.h.

Research Core

Total of 6 s.h.: two courses selected in consultation with the adviser

Supervision Core

Total of 6 s.h.: two courses selected in consultation with the adviser in educational policy and leadership studies

Cognates

Total of 3 s.h. in a subject field such as English

Electives

Total of 3 s.h. selected in consultation with adviser

Thesis

For students electing a thesis program, 07S:393 Master's Degree Thesis (2-4 s.h.)

COMPREHENSIVE EXAMINATION

Two 3-hour comprehensive examinations are required: one in curriculum and one in a related field in education or in a cognate field; or three 2-hour examinations.

Ph.D. in Curriculum and Supervision

This program, administered by the College of Education, prepares students for leadership positions in the field of curriculum for elementary, middle, and secondary schools, state departments, intermediate systems, and college teaching.

ADMISSION

Students must meet the general requirements of the Graduate College, hold a valid teaching license/certificate, and have at least two years of teaching experience. Applicants must be approved for admission by a faculty review committee.

REQUIREMENTS

A total of at least 90 s.h., including other approved graduate course work, is required.

Effective fall 2004, students admitted to any Ph.D. program in the Division of Curriculum and Instruction must complete at least two of the following three core courses.

- 07E:304 Schoolling in the United States 3 s.h.
- 07P:202 Understanding Educational Research 3 s.h.
- 07S:333 Seminar on Teacher Education 3 s.h.

Common Curriculum Core

Total of 21 s.h., as follows:

- 07E:132/07S:132 Middle School Curriculum and Methods 3 s.h.
- 07E:300 Design and Organization of Curriculum 3 s.h.
- 07E:304 Schoolling in the United States 3 s.h.
- 07P:255 Construction and Use of Evaluation Instruments 3 s.h.
- 07S:186 Curriculum Foundations 2-3 s.h.
- 07S:291 Secondary School Curriculum 3 s.h.

Research Core

A minimum of four research tools selected in consultation with adviser 12 s.h.

Supervision Core

A minimum of four courses in educational policy and leadership studies, selected in consultation with adviser 12 s.h.

Electives

Total of 9-12 s.h., chosen in consultation with adviser

Cognates

All doctoral candidates are required to complete at least 9-12 s.h. of cognate work in two areas selected in consultation with adviser.

Thesis

07S:493 Ph.D. Thesis 10-18 s.h.

COMPREHENSIVE EXAMINATION

Candidates take three 3-hour comprehensive examinations, one in secondary school curriculum and two in related fields in education or in a cognate field.

M.A. in English Education

This program, intended for experienced teachers of English, provides opportunities for professional development and preparation for department chairs, supervisors of English, and curriculum specialists for secondary schools. Application should be made to the College of Education.

ADMISSION

Applicants should have taken extensive course work in English and have taught English for at least two years, and must meet the general
requirements of the Graduate college. Students must maintain a g.p.a. of at least 3.00 while enrolled in the program.

REQUIREMENTS
Students specialize in English education and in one or two other areas. The other area(s) may include reading, writing, curriculum, adolescent literature, or a literacy area. Students and their advisers plan the program of study together. The only required course is 07S:315 M.A. Seminar: English Education. At the end of the program, students take a comprehensive examination in English education and in their chosen area(s).

M.A.T. in English Education
The M.A.T. program is designed for students who have an undergraduate degree in English and few or no professional education courses. Successful completion of the program enables students to receive a credential to teach English in secondary schools.

ADMISSION
Applicants must have a B.A. in English or the equivalent, with an undergraduate g.p.a. of at least 3.00. They also must take the Graduate Record Exam and meet all TEP application requirements. Since this is a credentialing program, candidates must not have qualified for a credential previously. Applicants are expected to have no more than 6 s.h. of course work in professional education courses prior to admission.

REQUIREMENTS
The program requires a minimum of 45 s.h., including the following courses.

English
07S:315/08P:405 M.A. Seminar: English Education
08N:141 Approaches to Teaching Writing 3 s.h.
08P:182 Language and Learning 2-3 s.h.
08P:198 Reading and Teaching Adolescent Literature 3 s.h.
07S:115 and 07S:194) 3 s.h.

07S:190 Orientation to Secondary Education 1 s.h.
07S:191 Observation and Laboratory Practice in the Secondary School arr.
07S:192 Observation and Laboratory Practice in the Secondary School arr.
07S:194 Methods: High School Reading 2-3 s.h.
07U:100 Foundations of Special Education 3 s.h.

A comprehensive examination is required. It must include issues in English education and student-selected issues in the study of English.

M.A.T. in Foreign and Second Languages Education
The M.A.T. program in foreign and second languages education is designed for superior liberal arts and sciences graduates who have had few or no professional education courses. Successful completion of the program leads to elementary and/or secondary teacher licensure. The M.A.T. is available in Chinese, French, German, Japanese, Latin, Spanish, and Russian.

ADMISSION
Applicants must have a bachelor's degree with a major or a strong concentration in a second language and an undergraduate g.p.a. of at least 3.00. They also must meet all TEP application requirements.

REQUIREMENTS
Students must complete at least 18 s.h. in graduate course work in the collaborating foreign language department and the following professional education courses. (See the College of Education web page for specific language department requirements.)

Professional Education
07B:180 Human Relations for the Classroom Teacher 3 s.h.
07E:102/07S:102 Technology in the Classroom (must be taken during student's first semester in the college) 2 s.h.
07P:200 Educational Psychology 3 s.h.
07S:100 Foundations of Education 3 s.h.
07S:190 Orientation to Secondary Education (must be taken during student's first semester in the college) 1 s.h.
07S:195 Teaching Reading in Secondary Content Areas (must be taken during student's first semester in the college) 1 s.h.
07U:100 Foundations of Special Education 3 s.h.

Foreign Language Teaching
All of these:
07E:183/07S:183 Second Language Classroom Learning 3 s.h.
07S:197 Principles of Course Design for Second Language Instruction 3 s.h.
07S:200 Fundamentals of Second Language Assessment 3 s.h.

Total of 21-27 s.h. from these:
07E:106/07S:106 Foreign Language Education Practicum I 3 s.h.
07E:107/07S:107 Foreign Language Education Practicum II 3 s.h.
07S:116 Learning to Teach Second Languages I 3 s.h.
07S:117 Learning to Teach Second Languages II 3 s.h.
07S:187 Seminar: Curriculum and Student Teaching 1 s.h.
07S:191 Observation and Laboratory Practice in the Secondary School arr.
07S:192 Observation and Laboratory Practice in the Secondary School arr.

Optional for K-12 Licensure
07S:189 Elementary School Special Subject Area Student Teaching 1-4 s.h.

A two-part comprehensive examination is required. One part covers issues in foreign language education related to theory and practice, the other covers knowledge of and proficiency in the language and/or literature of the candidate's choice.

ESL Endorsement
An ESL endorsement enables an individual to teach English as a Second Language in K-12 in the state of Iowa. Because teaching endorsements are additional areas of expertise added to a teaching license applicants must be current students in a TEP program or licensed inservice teachers.

ADMISSION
Applicants are admitted to the ESL endorsement program three times each year. Application deadlines are June 15 for fall admission, October 15 for spring, and March 15 for summer. Each applicant must submit a one-page essay explaining why he or she wishes to teach ESL; a transcript of all university-level course work; evidence of having completed two semesters of foreign language beyond the language component of the College of Liberal Arts and Sciences General Education Program or a documented score of "advanced plus" on the oral proficiency interview (OPI) given in the language department. Non-native speakers of English must provide evidence of scoring a 55 or higher on the Test of Spoken English.

M.A. in Foreign and Second Languages Education
This degree is appropriate for persons who would like to pursue a foreign language education specialization in teaching (kindergarten through college) or in related fields (e.g., language laboratory directors, instructional materials designers, or evaluation specialists). It also offers enrichment in foreign language pedagogical knowledge for the practicing teacher. The degree gives the candidate the opportunity to design a program with a special focus.

ADMISSION
Students must meet the general requirements of the Graduate College, have prior teaching experience, be proficient in English and in another language, have acquired at least 20 s.h. in undergraduate, upper division foreign language course work. Applicants should submit a statement of purpose explaining their graduate study goals. A g.p.a. of at least 3.00 in undergraduate course work and some experience living, working, and/or studying in the applicant's chosen target language culture are
leadership in a variety of settings in the areas of foreign language and ESL education. It is designed for individuals who have demonstrated success in foreign language and ESL teaching and who wish to prepare for positions in academia, government, or the private sector where in-depth knowledge of foreign language educational issues is required.

**ADMISSION**

Applicants should have at least two years of experience teaching foreign language or ESL and should hold a master's degree or have completed a significant amount of graduate course work in a foreign language or foreign language education. Application materials should include a statement of purpose explaining the applicant's professional goals, transcripts of all undergraduate and graduate work, Graduate Record Exam scores, a sample of academic writing, and three letters of recommendation. Applicants must have a g.p.a. of at least 3.00 in graduate course work. International applicants must score at least 250 on the computer-based TOEFL or 600 on the paper-based TOEFL.

**REQUIREMENTS**

The Ph.D. in foreign language and ESL education requires a minimum of 80 s.h., which can include courses taken for the master's degree. Most course work must be taken at the 200 level or above. At least 30 s.h. must be taken in the core area of foreign language education, at least 10 s.h. must be in specified courses in research methodology and 9 s.h. must be in a cognate area to be determined in consultation with the adviser.

Effective fall 2004, students admitted to the Ph.D. program in foreign language and ESL must complete 07E:304 Schooling in the United States (3 s.h.). They also choose one of the following two core courses.

- 07P:202 Understanding Educational Research 3 s.h.
- 07S:333 Seminar on Teacher Education 3 s.h.

**COMPREHENSIVE EXAMINATIONS**

To qualify to take comprehensive examinations, students must successfully complete the required course work and either write a research article or carry out extended research activity. The final products of these activities must be presented formally by the student to members of the comprehensive examination committee in anticipation of preparing the article or research activity for publication and presentation at a national conference. After successful completion of the pre-exam activity, the student is eligible to sit for the comprehensive examination, which comprises three 3-hour exams in foreign language education and the cognate area in education.

After passing the comprehensive examination, students in consultation with their adviser form a Ph.D. dissertation committee of at least five faculty members, who approve the dissertation proposal. The student then conducts research under the primary guidance of the adviser.

**Ph.D. in Language, Literacy, and Culture**

The program in language, literacy, and culture offers a Ph.D. that brings together scholarly traditions and contemporary theory in literacy and cultural studies. Course work provides both a broad background in relevant theoretic and research literature and opportunities to conduct original studies that explore the nature of literacy practices both in and out of school. Graduates secure careers in university and college teaching, research, curriculum development, and administration of literacy programs.

**ADMISSION**

Applications for admission and for financial aid are reviewed by January 10. Applicants should have at least two years of experience teaching or tutoring language or literacy (reading, writing, English, language arts) and should have earned a master's degree or have completed a significant amount of graduate course work in a literacy-related field. Application materials should include a statement of purpose explaining the applicant's reasons for pursuing graduate study and describing his or her future goals; transcripts of all undergraduate and graduate course work; Graduate Record Exam scores; a sample of academic writing; and three letters of recommendation.

**REQUIREMENTS**

The program requires a minimum of 78 s.h. of approved course work beyond the B.A., plus 10-12 s.h. of dissertation credit. Course work includes an introductory seminar in language, literacy, and culture; at least 9 s.h. of additional doctoral seminars in the program; 6 s.h. of a required sequence of courses in curriculum and instruction; at least 6 s.h. of course work in research methodology; and 9-12 s.h. of graduate course work taken outside the Division of Curriculum and Instruction (6 s.h. of that taken outside the College of Education).

As students near the completion of their course work, they identify several key strands for review and synthesis. With guidance from their advisers, students prepare for written and oral exams in two areas of literacy and submit a substantive issues paper, typically a report of an exploratory study or a review of research literature on a topic of special interest. They also design a syllabus for a literacy course and write a reflective commentary that demonstrates understanding of the relationship between theory and practice.

Following successful completion of all components of the comprehensive exam, students work with a faculty member to develop a proposal for a study that will make an original contribution to the understanding of some aspect of literacy. After the proposal has been approved, students conduct research and report their findings under the primary guidance of a dissertation chair.

Detailed information on the Ph.D. in language, literacy, and culture is available on the college's web site.
M.A. in Mathematics Education

The program provides students with advanced specialization in mathematics and education as a better foundation for K-12 teaching.

ADMISSION
Candidates must meet the admission requirements of the Graduate College and, except in unusual cases, hold a professional license/certificate to teach school mathematics. A combined score of 1000 on the verbal and quantitative sections of the Graduate Record Examination (GRE) General Test is preferred.

REQUIREMENTS
Students take a minimum of 10 s.h. of course work in mathematics approved by the adviser.

They also take a minimum of four courses in mathematics education, which must include 07S:235/07E:235 Current Issues in Mathematics Education (2-3 s.h.) and three courses chosen from the following:

07S:230/07E:230 Workshop in School Mathematics 1-3 s.h.
07S:231/07E:231 Technology in School Mathematics 2-3 s.h.
07S:234/07E:234 Foundations of Mathematics Education 2-3 s.h.
07S:236 The Teaching of Geometry 2-3 s.h.
07S:239 Teaching of Algebra 2-3 s.h.
07S:335/07E:335 Seminar: Mathematics Education 2-3 s.h.

Students choose a minimum of two courses from a cognate area; suggested areas are educational psychology, educational statistics and measurement, history or philosophy of education, pure or applied mathematics, instructional design and technology, counselor education, curriculum, administration, and special education. Courses are to be chosen in consultation with a faculty member from the cognate area.

Students also complete a sufficient number of electives in mathematics and education, chosen with the approval of the adviser, to complete 32 s.h. of credit.

There are three 2-hour comprehensive examinations: one in mathematics education, the second in mathematics, and the third in the cognate area.

M.S. in Mathematics With Education Option

This program prepares licensed/certified teachers with advanced specialization in mathematics and mathematics education. It is administered by the Department of Mathematics in the College of Liberal Arts and Sciences. Application should be made to that department.

REQUIREMENTS
A minimum of 24 s.h. in the Department of Mathematics, including the core master's program for either pure mathematics or applied mathematics as described below:

Pure mathematics core:
22M:115-22M:116 Introduction to Analysis I-II 6 s.h. or
22M:210-22M:211 Analysis I-II 6 s.h.
22M:120-22M:121 Abstract Algebra I-II 6 s.h. or
22M:205-22M:206 Introduction to Algebra I-II 6 s.h.
22M:132 General Topology 3 s.h.

Applied mathematics core:
22M:140 Continuous Mathematical Models 3 s.h.
22M:142 Nonlinear Dynamics and Chaos 3 s.h.
22M:144 Introduction to Partial Differential Equations I 2-3 s.h.
22M:151 Discrete Mathematical Models 3 s.h.
22M:170 Numerical Analysis: Nonlinear Equations and Approximation Theory 3 s.h.
22M:171 Numerical Analysis: Differential Equations and Linear Algebra 3 s.h.
22M:174 Optimization Techniques 3 s.h.

Two courses in mathematics education
Students take a comprehensive examination of six hours over the required courses in either pure mathematics or applied mathematics, and education. The examination assesses the candidate's knowledge of mathematics and of the relevance of specific concepts relating to teaching secondary school mathematics.

Ph.D. in Mathematics Education

The program for a Ph.D. in mathematics education prepares supervisors, teacher education personnel, community college personnel, and researchers in mathematics education. It is administered by the College of Education.

The 72 s.h. include work taken toward the master's degree. Credit earned more than 10 years previously must be updated. Minimum course requirements are for exceptional students. Typically, the program consists of 80-90 s.h.

ADMISSION
Applicants must have an undergraduate major in mathematics or the equivalent; a master's degree in mathematics, mathematics education, or education; a g.p.a. of at least 3.00; and, except in unusual circumstance, a current teaching license/certificate and at least two years of teaching experience.

REQUIREMENTS
Effective fall 2004, students admitted to any Ph.D. program in the Division of Curriculum and Instruction must complete at least two of the following three core courses.

07E:304 Schooling in the United States 3 s.h.
07P:202 Understanding Educational Research 3 s.h.
07S:333 Seminar on Teacher Education 3 s.h.

Students must complete a minimum of 36 s.h. of graduate work in the Division of Mathematical Sciences (mathematics, statistics, and computer science), including the requirements for the pure mathematics core, the applied mathematics core, or middle-grades mathematics, as follows. Electives are encouraged in the pure mathematics and applied mathematics sequences.

Pure Mathematics
22M:115-22M:116 Introduction to Analysis I-II 6 s.h.
22M:120-22M:121 Abstract Algebra I-II 6 s.h.
22M:132 General Topology 3 s.h.

Applied Mathematics
22M:142 Nonlinear Dynamics and Chaos 3 s.h.
22M:144 Introduction to Partial Differential Equations I 2-3 s.h.
22M:170 Numerical Analysis: Nonlinear Equations and Approximation Theory 3 s.h.
22M:171 Numerical Analysis: Differential Equations and Linear Algebra 3 s.h.
22M:174 Optimization Techniques 3 s.h.

Middle-Grades Mathematics

For this option, no course work may replicate graduate work; at least five of these courses must be completed; and 22M:106, 22M:126, and 22M:151 are required unless duplicated by previous course work.

22C:106 Computer Science I 3 s.h.
22M:100 Introduction to Ordinary Differential Equations 2-3 s.h.
22M:104 Introduction to Matrix Theory 3 s.h.
22M:106 Transformation Geometry 3 s.h.
22M:107 History of Mathematics 3 s.h.
22M:108 Philosophy of Mathematics 3 s.h.
22M:109 Classical Analysis 3 s.h.
22M:120 Elementary Theory of Numbers 2-3 s.h.
22M:127 Matrix Theory 3 s.h.
22M:151 Discrete Mathematical Models 3 s.h.
22S:120 Probability and Statistics 4 s.h.

Courses jointly listed in education do not fulfill this requirement. Students who completed their mathematics requirement at another institution must complete at least an additional 6 s.h. of course work in mathematics at The University of Iowa, chosen with the approval of the adviser.

Also required are at least five courses in mathematics education, which must include 07S:235 Current Issues in Mathematics Education and continuous registrations in 07S:335 Seminar: Mathematics Education until the comprehensive examination is passed.

ADDITIONAL REQUIREMENTS
Students concentrate in two additional comprehensive examination areas in either the mathematical sciences or education. A minimum of three courses usually are required for a comprehensive examination area, but candidates should consult with appropriate faculty members in the areas selected to determine which courses they should take in order to adequately prepare for the examinations.

A minimum of two courses in data analysis and research design are required, including both quantitative and qualitative methods.

Students must demonstrate competence in computer programming.

Students must complete a total of at least 24 s.h. in College of Education courses; this includes the course work listed above but does not include dissertation credit. An additional 10 s.h. of dissertation credit (07S:493) is required.

At the completion of the program, the student must have a cumulative g.p.a. of 3.00 or higher on all graduate work in mathematics, all University of Iowa graduate work in mathematics, all graduate work, and all University of Iowa graduate work.
Students take three written comprehensive examinations, one in mathematics education and two selected from other fields of education or mathematics; an oral examination follows the written examinations. A partial list of potential cognate areas is available from the M.A. program in mathematics education.

Students also complete a dissertation on a research problem in mathematics education. A prospectus of the proposed research must be presented to the dissertation committee before the candidate undertakes the study. Upon completion of the dissertation, the candidate defends the dissertation in an oral examination.

**M.A. in Music Education**

The program provides students with deeper insights into music, the theory and practice of music education, and the role of music in the school curriculum. The degree program may be taken with thesis (30 s.h. minimum) or without (33 s.h. minimum).

The program is administered by the School of Music, in the College of Liberal Arts and Sciences, in cooperation with the College of Education. Application is made to the School of Music.

**Ph.D. in Music Education**

The program prepares students for teaching, research, or administrative posts. Graduates accept positions at colleges, as teachers of music education classes and activities; as band, chorus, and orchestra directors; and as administrators of music departments and schools of music. Some apply their skills in public schools, as music supervisors, research and curriculum consultants, or directors of city or district school music programs.

The program is administered by the School of Music, in the College of Liberal Arts and Sciences, in cooperation with the College of Education. Application is made to the School of Music.

**M.A.T. in Science Education**

The M.A.T. is designed primarily for those who already have completed a B.S. or B.A. in an area of science and who decide that they would like to become teachers. It features advanced work in science alongside the courses required for certification, offering students the opportunity to attain a master's degree and teaching certification at the same time.

The program assumes students have completed considerable course work in science (at least 50 s.h.) as undergraduates, but no previous course work in education. Students' science course work should be equivalent to that required by the science education program in the UI College of Liberal Arts and Sciences.

**ADMISSION**

Applicants must have a bachelor's degree with a major or its equivalent in one of the sciences. A g.p.a. of at least 3.00 is required for admission and must be maintained throughout enrollment in the program. Applicants must meet all TEP application requirements.

**REQUIREMENTS**

**Professional Education Sequence Foundation**

- **07B:180 Human Relations for the Classroom Teacher** 3 s.h.
- **07E:102/07S:102 Technology in the Classroom (must be taken during student's first semester in the college)** 2 s.h.
- **07P:200 Educational Psychology** 3 s.h.
- **07S:100 Foundations of Education** 3 s.h.
- **07S:190 Orientation to Secondary Education (must be taken during student's first semester in the college)** 1 s.h.
- **07S:195 Teaching Reading in Secondary Content Areas (must be taken during student's first semester in the college)** 1 s.h.
- **07U:100 Foundations of Special Education** 3 s.h.

Science education courses are taken in the following sequence:

- **07S:151 Science Teaching and Practice with Early Learners** 3 s.h.
- **07S:152 Methods of Teaching Science** 3 s.h.

These two taken concurrently:

- **07S:153 Instructional Issues in Teaching Science** 3 s.h.
- **07S:179 Secondary School Science Practicum** 2 s.h.

These taken concurrently:

- **07S:187 Seminar: Curriculum and Student Teaching** 3 s.h.
- **07S:191 Observation and Laboratory Practice in the Secondary School** 6 s.h.

**Science Specialization**

The following courses are required for the undergraduate degree in science education at The University of Iowa. They need not be repeated by M.A.T. candidates who need one or more advanced courses in their major science area, or by students from other interdisciplinary science discipline programs that prepare teachers for grades 6-9.

Both of these:

- **097:128 Meaning of Science** 2 s.h.
- **097:130 Science in Historical Perspective** 2 s.h.

Two of these [unless completed during undergraduate study]:

- **097:102 Societal and Educational Applications of Earth Sciences and Environmental Sciences** 3 s.h.
- **097:103 Societal and Educational Applications of Biological Sciences** 3 s.h.
- **097:105 Societal and Educational Applications of Physical Sciences** 3 s.h.
- **097:106 Societal and Educational Applications of Chemical Concepts** 3 s.h.
- **097:140 Problems in Integrating the Teaching of Environmental Science** 3 s.h.

**Electives**

A minimum of one graduate course in biology, chemistry, earth science, or physics is required. Students who have satisfied portions of the required science course work listed above must take additional science course work to meet the minimum requirement of 48 s.h.

**COMPREHENSIVE EXAMINATION**

Comprehensive examinations are completed before the student teaching semester. Two examinations or projects, one in science education and one in a science specialization area, are required. They may not duplicate course examinations in these areas. The science education examination, under the guidance and supervision of the examining committee, consists of two parts, written and oral. Detailed requirements for the science education comprehensive examination are available from the Science Education office.

**M.S. in Science Education**

This degree is designed for students who want to pursue advanced science education specialization in teaching (kindergarten through college) or in related fields such as medical education, museum programs, and textbook editing. Although a nonthesis option is available, the thesis program is the recommended option.

**ADMISSION**

Candidates must have an undergraduate g.p.a. of at least 3.00 and usually must have an undergraduate degree in one of the sciences or in science education. Applicants must have teaching licensure/certification unless they are preparing for careers in allied health, museums, or community colleges.

**REQUIREMENTS**

A total of 38 s.h. of course work, distributed as follows.

- **Science Education**
  - **07E:255/07S:255 Science Education: Issues, History, and Rationale** 3 s.h.
  - **07E:256/07S:256 Science Education: The Nature of Science** 3 s.h.
  - **07E:257/07S:257 Science Education: Teaching, Learning, and Curriculum Models** 3 s.h.
  - **07E:258/07S:258 Science Education Research Models and Conceptual Schemes** 3 s.h.
  - **07S:350/07S:350 Seminar: Science Education (registration required each semester in residence)** 0.2 s.h.

- **Science Specialization**
  - Total of 19 s.h. in science and applied science courses (100-level or above) chosen in consultation with the adviser

- **Corroborative Studies (Nonthesis Only)**
  - Science and applied science courses selected from an area other than the specialization 6 s.h.

- **07S:393 Master's Degree Thesis** 6 s.h.

**COMPREHENSIVE EXAMINATION**

Students take a comprehensive examination in two areas: one in science education, the other in a science specialization.

**Ph.D. in Science Education**

This degree is appropriate for qualified candidates who aspire to college and university positions as...
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science educators; major supervisory posts in national, state, and local systems; teaching positions in the sciences at small liberal arts colleges; positions as instructors of general education science courses and areas at major colleges; positions as research directors in science education; and positions in medical education.

ADMISSION

Candidates must meet the minimum admission standards of the Graduate College. Applicants usually must have completed a master's degree in one of the sciences or science education and have earned a g.p.a. of at least 3.00 on all graduate work taken before making the application. All students must have completed an M.S. thesis or similar research suitable for publication.

REQUIREMENTS

Students must complete at least 102 s.h. of course work, which must include the courses listed below (37 s.h.); courses taken toward a master's degree count toward the 102 s.h. total.

07E:255/07S:255 Science Education: Issues, History, and Rationale 3 s.h.
07E:256/07S:256 Science Education: The Nature of Science 3 s.h.
07E:257/07S:257 Science Education: Teaching, Learning, and Curriculum Models 3 s.h.
07E:258/07S:258 Science Education Research Models and Conceptual Schemes 3 s.h.
07E:350/07S:350 Seminar: Science Education (registration (required each semester in residence) 0-2 s.h.
07E:493/07S:493 Ph.D. Thesis in Early Childhood and Elementary Education 10 s.h.
07S:355 Action Research in Science Education (repeated registrations of 3 s.h. each) 9 s.h.
07S:368 Ph.D. Seminar: Current Research in Science Education (two or more registrations required after completing 07E/07S:255-258) 4 s.h.

Effective fall 2004, students admitted to any Ph.D. program in the Division of Curriculum and Instruction must complete at least two of the following three core courses.

07E:304 Schooling in the United States 3 s.h.
07P:202 Understanding Educational Research 3 s.h.
07S:333 Seminar on Teacher Education 3 s.h.

Candidates must complete 27 s.h. of credit in one of the following as the major area of study: biological science, physical science, earth science, or environmental studies.

They also complete 8 s.h. in an integrated group of supporting courses chosen from a limited number of areas, such as curriculum, applied science, educational measurement, and history/philosophy of science, in consultation with the adviser.

Candidates must demonstrate competency in two of the following research tool areas: statistics, computer programming and/or data processing, research design (completion of a pilot study). Competency is certified by the adviser.

Candidates for the degree usually are expected to participate in the teaching and research function of the science education program throughout their residence.

All students are expected to spend a full year in residency actively involved with course work.

Candidates complete a minimum of 10 s.h. of dissertation credit (07E/07S:493).

The comprehensive examination consists of three parts: one dealing with science education, another with an area of science, and a third with the corroboration studies area.

M.A. in Social Studies Education

The program provides an opportunity for interdisciplinary work in education, history, social science, or related areas for classroom teachers, high school department chairs, and supervisors, as well as others interested in acquiring greater competence in history and the social sciences and greater proficiency in teaching and supervision.

Students in most cases may choose from two programs in social studies education. Program A provides an opportunity for interdisciplinary work in education, history, social science, or related areas for classroom teachers or others interested in acquiring greater competence in instruction and their subject matter area. Program B is for individuals who have their bachelor's degree in history or social sciences and wish to obtain a teaching license/certificate in the process of completing the master's degree.

ADMISSION

Applicants in most cases must have a bachelor's degree in education, history, or one of the social sciences from an accredited institution; a cumulative g.p.a. of at least 3.00; a g.p.a. of at least 3.00 in history and/or social science courses; preferred composite Graduate Record Examination (GRE) General Test score of 1000 on the verbal and quantitative tests; and two letters of recommendation. Evidence of writing ability in the form of a completed major paper or essay also is required. Typically, applicants to Program A are expected to hold a secondary teaching license/certificate.

After declaring a social studies education major, the M.A. candidate must maintain a g.p.a. of at least 3.00.

PROGRAM A REQUIREMENTS

Program A students must complete a minimum of 38 s.h. distributed among history and social sciences, or related areas, and education, with a minimum of 10 s.h. in each of three fields.

Nine of the total 38 s.h. must consist of graduate courses numbered 200 or above distributed among the three fields selected for concentration.

If the thesis option is selected, the student completes a research or investigative problem in history or social sciences, or in related areas, in which case the thesis director is a member of the appropriate department; or an investigative problem in social studies education, in which case the thesis director is a faculty member in the College of Education.

A two-hour written examination is required in each of the three fields selected for concentration.

PROGRAM B REQUIREMENTS

Program B students must complete a minimum of 38 s.h. All of the following courses must be completed, but students may elect to take some of the course work in the process of completing the bachelor's degree. In such cases, the number of semester hours required for Program B is reduced accordingly, but the requirement never falls below 38 s.h. In all instances, the student must take appropriate work for meeting all Iowa Department of Education requirements for teacher licensure/certification.

Professional education courses:
07B:180 Human Relations for the Classroom Teacher 3 s.h.
07E:102/07S:102 Technology in the Classroom (must be taken during student's first semester in the college) 2 s.h.
07P:200 Educational Psychology 3 s.h.
07P:100 Foundations of Education 3 s.h.
07S:111 Introduction and Practicum: Social Studies 3 s.h.
07S:170 Methods: Social Studies 3 s.h.
07S:187 Seminar: Curriculum and Student Teaching 3 s.h.
07S:190 Orientation to Secondary Education (must be taken during student's first semester in the college) 1 s.h.
07S:191 Observation and Laboratory Practice in the Secondary School 6 s.h.
07S:192 Observation and Laboratory Practice in the Secondary School 6 s.h.
07S:195 Teaching Reading in Secondary Content Areas (must be taken during student's first semester in the college) 3 s.h.
07S:233 History and Foundations of Social Studies Education 3 s.h.
07S:277 Seminar: Social Studies Education (History Teaching and Learning) 3 s.h.
07S:277 Seminar: Social Studies Education (Education for Social Justice) 3 s.h.
07U:100 Foundations of Special Education 3 s.h.

Subject area specialization courses: A minimum of 9 s.h. of course work in history or a social science is required. At least one course should be taken with the instructor who will serve on the examining committee.

Note: The state of Iowa requires that students certified in social studies must have a teaching major of 30 s.h. and one endorsement area of 15 s.h. Endorsement areas include anthropology, economics, geography, psychology, sociology, American history, and world history.

COMPREHENSIVE EXAMINATION

The comprehensive examination consists of three parts: a two-hour examination in the subject area specialization, a two-hour examination in general professional education, and a two-hour examination in social studies education.

Ph.D. in Social Studies Education

This program is administered by the College of Education. It prepares secondary department chairs, supervisors, curriculum directors, teacher
education personnel, and college instructors in the social sciences and in social studies education.

ADMISSION

Applicants must have a bachelor's degree in history, the social sciences, or education, and a master's degree in history, the social sciences, or education. At least two years teaching experience is strongly preferred. Applicants must satisfy the requirements for admission to a doctoral program in the Graduate College and have a g.p.a. of at least 3.00. A minimum Graduate Record Examination (GRE) General Test score of 1200 (composite of verbal and quantitative) is preferred. Applicants who did not write a thesis as part of their M.A. must submit seminar papers or field research as equivalents.

REQUIREMENTS

Students must complete a minimum of 90 s.h. of course work and dissertation credit beyond the bachelor's degree, not including tool requirements. The 90 s.h. must be distributed among history, social sciences or related areas, and professional education, depending on the background and goals of the candidate. A minimum of 18 s.h. of course work must be completed in one area of history or one of the social sciences.

Seminars and courses numbered 200 or above are required in each of the areas of study constituting the major. Students must take 9 s.h. of required courses in social studies education, including 07E:233/07S:233 History and Foundations of Social Studies Education (3 s.h.) and 6 s.h. of 07E:196/07S:196 Topics in Curriculum and Instruction (social studies emphasis) and/or 07E:277/07S:277 Seminar: Social Studies Education.

Effective fall 2004, students admitted to any Ph.D. program in the Division of Curriculum and Instruction must complete at least two of the following three core courses.

- 07E:304 Schooling in the United States 3 s.h.
- 07P:202 Understanding Educational Research 3 s.h.
- 07S:333 Seminar on Teacher Education 3 s.h.

Tool requirements are tailored to the individual's program and may consist of foreign languages or other requirements. Usually, statistics plus research techniques in one or more of the chosen fields or in a language is required.

COMPREHENSIVE EXAMINATIONS

Students take three 3-hour examinations, one in each of the areas of study. Depending on the distribution of work taken, the nine hours of written examinations may be rearranged.

The Ph.D. examining committee consists of five members, who are selected with regard to the nature of the student's Ph.D. program and distribution of course work. An oral examination is conducted by the committee as a whole following the written examination.

DISSERTATION

A dissertation is required on a research problem in social studies education. The candidate must present a prospectus of the proposed research to the dissertation committee prior to undertaking the study. Upon completion, an oral examination is conducted in defense of the dissertation.

Special Education

Special education programs are offered in K-6 and 7-12 Instructional Strategist I: Mild/Moderate and K-12 Instructional Strategist II: BD/LD. These programs are designed to prepare graduates for positions in public schools, local and state education agencies, clinical settings, and institutions of higher education. All teacher licensure/certification programs are approved by the Iowa Department of Education.

A program leading to special education licensure/certification in Instructional Strategist I: Mild/Moderate (K-6) is available to undergraduates (see "Elementary Education"). Undergraduates who wish to pursue a career in special education are encouraged to contact the Division of Curriculum and Instruction for advisement.

Admission

Admission requirements include:

- a completed graduate application form;
- copies of official transcripts for all previous college course work (applicants must have a g.p.a. of at least 3.00);
- an official report of the Graduate Record Examination (GRE) General Test (verbal and quantitative);
- three current letters of recommendation; and
- evidence of experience and/or teacher licensure/certification (varies depending on program).

Students whose native language is not English must have a TOEFL score of 600 on the paper-based test or 250 on the computer-based test.

An interview may be requested. In addition to the above, the following represent minimum requirements.

Master of Arts: An undergraduate g.p.a. of at least 3.00 (and/or at least 3.00 on a minimum of 12 s.h. of graduate course work) is required and a combined verbal and quantitative GRE score of 1000 is preferred.

Doctor of Philosophy: An undergraduate g.p.a. of at least 3.00, or a graduate g.p.a. of at least 3.50 if a graduate degree has been conferred, and a combined verbal and quantitative GRE score of 1000 are preferred. For students without an M.A. thesis, an equivalent project must be completed.

Doctor of Philosophy: An undergraduate g.p.a. of at least 3.00, or a graduate g.p.a. of at least 3.50 if a graduate degree has been conferred, and a combined verbal and quantitative GRE score of 1000 are preferred. For students without an M.A. thesis, an equivalent project must be completed.

M.A. in Special Education

The M.A. program requires a minimum of 32 s.h. Specific program requirements are available in the Division of Curriculum and Instruction office. The primary purpose of the M.A. degree program in special education is to prepare persons to deliver appropriate levels of service to students with disabilities at the elementary and secondary levels in either public or private settings.

Applicants with a master's degree and special education certification may request admission for the purpose of obtaining an additional area of special education licensure/certification (i.e., professional improvement). Students admitted to the M.A. program typically receive licensure/certification in at least one area upon completing the program.

Ed.S. in Special Education Administration

The Ed.S. in special education administration is offered jointly with the Division of Educational Policy and Leadership Studies. See "Educational Policy and Leadership Studies" in this section of the Catalog.

Special Education Consultant

The purpose of this program is to prepare consultants to serve in special education programs.

ADMISSION

Admission to a certification or M.A. degree program in special education is required. Applicants must hold or meet the requirements for the special education teaching endorsement congruent with the desired consultant authorization. Teaching endorsements must be documented by copies of teaching credentials. Applicants also must have completed four years of successful teaching experience, two of which must be congruent with the desired consultant authorization. Applicants must provide evidence of successful teaching (e.g., written statements from school personnel documenting years of teaching, type of students served, and success as a classroom teacher).

Documentation of certifications and teaching experience should be submitted with the application for admission to the Graduate College.

REQUIREMENTS

Option 1: Persons without an M.A. in special education must complete an M.A. degree and teaching endorsement program in special education congruent with the consultant desired authorization, plus the three courses listed under “Option 2,” for a total of at least 38 s.h.

Option 2: Persons with an M.A. in special education and an endorsement congruent with the desired authorization must complete the following three courses.

- 07E:300 Design and Organization of Curriculum 3 s.h.
- 07P:263 Consultation Theory and Practice 3 s.h.
- 07S:333 Seminar on Teacher Education 3 s.h.
All assistantships are awarded on a competitive basis. To be considered for an assistantship, applicants must have been admitted to regular status in the Graduate College and accepted in an advanced program by the College of Education. Inquiries concerning assistantships should be directed to the division chair.

Secondary and Special Education

A limited number of assistantships are available for graduate students pursuing advanced degrees. Holders of such assistantships may register for no more than 12 s.h. and, except with special permission, no less than 6 s.h. per semester. Assignments vary. Some involve teaching undergraduate courses or supervising practicum experiences, and others are made up primarily of research activities.

Secondary education graduate students also may be eligible for assistantships in some College of Liberal Arts and Sciences departments. A candidate with appropriate credentials should apply directly to the specific department or consult the College of Education adviser directing the program in the appropriate field. Traineeships in selected licensure/certification and master’s degree programs are available to full-time special education students.

Courses

Early Childhood and Elementary Education

07E:021 Oral Interpretation 3 s.h.
Same as 036:021.

07E:090 Orientation to Elementary Education 1 s.h.
Overview of elementary education expectations, including options for student teaching, classroom observation, lesson planning, performance indicators, INTAG standards, classroom management, information about mandatory child abuse reporting, blood-borne pathogens, professional ethics. Eight-week course.

07E:100 Foundations of Education 3 s.h.
Overview of American education, preschool through secondary; aims, history, philosophy of education; professional ethics, legal responsibilities; school curriculum, organization, finance, school law, political and social issues. Prerequisite: admission to TEP. Same as 075:100.

07E:101 Introduction to Education 3 s.h.
Orientation to the field, administrative organization, instructional procedures, professional ethics, legal responsibilities, contemporary problems at both elementary and secondary levels. Same as 075:101.

07E:102 Technology in the Classroom 2 s.h.
Same as 075:102.

07E:104 Remedial Methods in Speech and Hearing 2 s.h.
Emphasis on elementary grades. Usually taken in conjunction with 07E:192, which provides approximately 70 hours of supervised clinical practice in elementary schools. Primarily for speech pathology and audiology majors. Prerequisite: consent of instructor.

07E:106 Foreign Language Education Practicum I 3 s.h.
Skill development for teaching languages in the early grades; curriculum design, test creation, microteaching with inservice teachers. Prerequisite: 07E:110 or 07S:110. Corequisite: 07S:116. Same as 07S:118.

07E:107 Foreign Language Education Practicum II 3 s.h.
Practice in lesson design, classroom management techniques, evaluation skills during work with inservice foreign language teachers. Corequisite: 07S:117. Same as 07S:107.

07E:110 Teaching K-12 Second Language Learners 3 s.h.
Second language learning and teaching in the multicultural classroom; influence of school setting, societal context. Prerequisite: admission to TEP. Same as 07S:110.

07E:114 Parent-Child Relationships 3 s.h.
Roles and relationships within and between families, culture, society, identity (family) resources and concerns based on children’s development, abilities.

07E:118 ESL Practicum I 3 s.h.
Skill development for teaching English as a second language; curriculum design, test creation, microteaching with inservice teachers. Prerequisite: 07E:110 or 07S:110. Corequisite: 07S:116. Same as 07S:118.

07E:119 ESL Practicum II 3 s.h.
Practice in lesson design, classroom management techniques, evaluation skills during work with inservice English as a second language teachers. Prerequisite: 07E:110 or 07S:110. Corequisite: 07S:117. Same as 07S:119.

07E:120 Methods and Materials: Music for the Classroom Teacher 2-3 s.h.
Development of music skills, techniques, knowledge of methods and materials for teaching music to young children; for elementary education majors. Prerequisite: admission to TEP.

07E:122 Methods and Materials: Art for the Classroom Teacher 2 s.h.
Projects, techniques, processes in art for elementary and early childhood education majors; combination lecture and studio painting, drawing, printmaking, sculpture, and crafts with materials and tools commonly available in the elementary schools. Same as 01E:195.

07E:123 Reading and Responding to Children’s Literature 2-3 s.h.
Reading and teaching children’s literature in elementary classrooms for aesthetic, personal, social, and critical purposes; readings from a wide range of genres, approaches to teaching children’s literature; recent trends and issues. Prerequisite: admission to elementary TEP. Corequisites: 07E:160 and 07E:164.

07E:124 Differentiating Projects with Technology 1 s.h.
Use of digital tools to enrich student presentations; PowerPoint slide shows, presentations uploaded to World Wide Web, interactive multimedia presentations via HyperStudio. Same as 07S:124.

07E:125 Differentiated Curriculum for the Gifted 1 s.h.
Program options for K-12 gifted students; student abilities and needs linked with various curriculums; case studies, school materials. Same as 07S:125.

07E:126 Reading for High-Ability Students 1 s.h.
Purposes and methods of reading instruction, with focus on developmentally appropriate needs of high-ability readers; genres of literature, enriched and accelerated reading curriculum, role of reading in social and emotional development of gifted students. Same as 07S:126, 07U:126.

07E:127 Physical Education and Health for Elementary Teachers 2 s.h.
Methods, curriculum. Prerequisite: admission to TEP.

07E:128 Differentiating through Advanced Technology 1 s.h.
Multimedia and web-based tools and utilities that enrich classroom learning and facilitate presentations made by technologically advanced students; production and editing of digital video, computer graphics, advanced web-publishing and interactive technologies; skill development. Same as 07S:128, 07U:128.

07E:129 Learning and Leadership for Gifted and Talented Students 1 s.h.
Same as 07S:129, 07U:129.

07E:132 Middle School Curriculum and Methods 3 s.h.
Junior high and middle school development compared; characteristics of exemplary programs, interdisciplinary and intracurricular trends; variety of teaching methods (group and individual); hands-on activities. Prerequisite: admission to TEP. Same as 07S:132.

07E:134 Parent-Teacher Communication 1-3 s.h.
Realities of working with parents; interpersonal skills; options for parent support services. Same as 07P:134, 07U:134.

07E:136 Home/School/Community Partnerships 3 s.h.
Issues related to collaboration among families, educators, community members in implementing school programs. Same as 07P:136, 07S:136, 07U:136.
07E:143 Methods: Art 
3 s.h.
Application of art methods to teaching children in Saturday Children's Art Class Program. Prerequisite: 07E:196.

07E:145 Methods and Materials: General Music 
3 s.h.
Methods for teaching general music in elementary and secondary schools. Prerequisites: 07E:102 or 07S:102, 07S:091, and 07S:096.

07E:150 Methods A Practicum 
1 s.h.
Observation of participation in, reflection about language and literacy instruction at K-6 level.

07E:157 Methods: Early Childhood Education 
3 s.h.
Current educational literature emphasizing developmentally appropriate methodology across all curricular areas and including health, safety, nutritional needs, play, creativity.

07E:158 Guidance of Young Children 
3 s.h.
Preventing problems in child care programs; behavior management; encouraging social/moral development; recognizing signs of emotional distress, neglect; understanding mandatory reporting procedures, 24-hour practicum in two child care centers.

07E:160 Methods: Elementary School Language Arts 
3 s.h.
Theoretical foundations and practical skills for designing and implementing effective language arts instruction and assessment, grades K-6. Prerequisite: admission to elementary TEP. Corequisite: 07E:163 and 07E:164.

07E:161 Methods: Elementary School Social Studies 
2-3 s.h.
Objectives and content for grades K-6; integrated approaches, community-based learning. Prerequisite: admission to elementary TEP. Corequisites: 07E:162 and 07E:163.

07E:162 Methods: Elementary School Science 
2-3 s.h.
Principles and concepts of science instruction in elementary school for preschool instruction of elementary education majors; emphasis on techniques that characterize new approaches to science. Prerequisite: admission to elementary TEP. Corequisites: 07E:161 and 07E:163.

07E:163 Methods: Elementary School Mathematics 
2-3 s.h.
Corequisites of teaching and means of assessment for K-6 mathematics. Prerequisite: admission to TEP. Corequisites: 07E:161 and 07E:162.

07E:164 Methods: Elementary School Reading 
3 s.h.
Theoretical foundations and practical skills for designing and implementing effective reading instruction and assessment, grades K-6. Prerequisite: admission to elementary TEP. Corequisites: 07E:163 and 07E:162.

07E:165 Methods B Practicum 
1 s.h.
Practicum at the K-6 level involving mathematics, science, social science content areas; scheduling done in related methods courses.

07E:167 Observation and Assessment of Young Children 
3 s.h.
Observation and application of developmentally appropriate assessment for children age eight, including special needs and at-risk populations; play and creativity; practicum experience in diverse settings with varying age levels (infant/toddler, preschool, primary, junior); 20-hour practicum.

07E:169 History and Philosophy of Early Childhood Education 
3 s.h.
Ideas about development, learning, education of young children, including children with special needs, from past to future; current legislation affecting children, current ethical codes.

07E:170 Classroom Management 
1-3 s.h.
Activities, techniques, strategies, theories related to effective classroom management. Repeatable.

07E:171 Reading and Writing: Processes and Instruction 
3 s.h.
Factors that contribute to individuals’ ease or difficulty in learning to read and write; issues, techniques in classroom literacy instruction and assessment. Pre-or corequisites: 07E:160 and 07E:164.

07E:172 Reading Instruction: Teaching Practicum 
3-4 s.h.
Experience in conducting reading instruction for children; four Saturday sessions and one on-campus meeting weekly. Prerequisites: 07E:123, 07E:165, and 07E:164. Corequisite: 07E:171.

07E:173 Teaching Elementary School Mathematics 
2-3 s.h.
Elementary school mathematics curriculum; emphasis on accommodating children’s varied ability levels, diagnosing pupil errors, testing, developing instructional sequences, remediation and enrichment. Repeatable.

07E:174 Elementary Education: Practicum 
art
Experience conducting instruction for children, four schoolroom sessions and an on-campus meeting weekly. Prerequisite: completion of appropriate area of specialization methods block.

07E:175 Linguistic Diversity in the Classroom 
3 s.h.
Topics related to diversity in the classroom grades K-12; optimal teaching techniques for positive academic outcomes of linguistically diverse students. Same as 07S:175.

07E:176 Teaching Elementary School Science 
3 s.h.
Special topics, activities in student-centered teaching/learning environments, standards, integrated curriculum, alternative assessments, classroom management, problem solving, action research.

07E:177 Workshop: Curriculum Evaluation and Selection 
1-3 s.h.
For a specific curricular area, choosing or developing criteria for evaluating, reviewing, selecting, organizing materials and activities to suit specific curricular patterns. Repeatable for different areas (see ISIS for areas offered).

07E:178 Workshop: Curriculum Development and Implementation 
1-4 s.h.

07E:179 Workshop: Teaching Methodology 
1-3 s.h.
For a specific curricular area: review of teaching methods, theory, related research; designing lessons, demonstrations, observations, simulations of teaching. Repeatable for different areas (see ISIS for areas offered).

07E:180 Drama in the Classroom 
3 s.h.
Theories of community, culture, identity in relation to language arts teaching and learning; emphasis on incorporating multiple literacies, both oral and print, into language arts curricula; action research involving oral literacy. Same as 049:101.

07E:182 Language and Learning 
2-3 s.h.
How language grows, enables cognitive development; readings in psychology, anthropology, education; relationship of language theory to language instruction in schools. Same as 07S:182, 08P:182.

07E:183 Second Language Classroom Learning 
3 s.h.
Synthesis of empirical findings on children’s and adult’s learning of a second or foreign language; emphasis on theoretical underpinnings of many approaches, methods, techniques in language teaching. Same as 07S:183, 039:177.

07E:186 Curriculum Foundations 
2-3 s.h.
Elementary and secondary background developments in curriculum; definitions, historical perspective, philosophies, theories of knowledge, models, learning theories, directions of development and shaping forces; emphasis on development of a curriculum project. Same as 07S:186.

07E:187 Philosophy and Administration of Early Childhood Programs 
3 s.h.
History and philosophy of developmentally appropriate practices and application to early childhood programs; managing inclusive early childhood education programs—licensing, budgeting, health and safety, food and nutrition, parent involvement, supervising staff, maintaining a quality program; implications of legislation and public policy that affect children with and without disabilities and their parents, 12-hour practicum.

07E:188 Practicum in Teaching and Curriculum Development in Gifted Education 
1-6 s.h.
Experience in developing course materials for classes offered through the Beltz Center. Same as 07C:188, 07S:188, 07T188.

07E:189 Development and Administration of Child Care Centers 
3 s.h.
Topics in starting and managing a child care center: licensing, budgeting, health and safety, food and nutrition, parent involvement, supervising staff, maintaining quality, legislation and public policy affecting child care and without disabilities, and parents; 12-hour practicum.

07E:190 Supervised Teaching in the Elementary School: Interactive Phase 
art
Student teaching in elementary level (K-6). Prerequisite: application to the College of Education Office of Student Personnel. Corequisite: 07E:101.

07E:191 Supervised Teaching in the Elementary School: Pre- and Post-Active Phase 
art
Prerequisite: application to the College of Education Office of Student Personnel. Corequisite: 07E:197.

07E:204 Literature for Children II 
3 s.h.
Current theory, research, and practice in reading and responding to children’s literature; genre and topic vary. Same as 07S:204, 08P:204.

07E:205 Foundations of Education 
3 s.h.
Overview of American education, preschool through secondary, aims, history, philosophy; professional ethics, legal responsibilities; school curriculum, organization, finance, school law, political and social issues. Prerequisite: admission to TEP. Same as 07S:205.

07E:230 Workshop in School Mathematics 
1-3 s.h.
One-to-three-week examination of and experience with recent developments in school mathematics teaching methods, curriculum. Same as 07S:230.

07E:231 Technology in School Mathematics 
2-3 s.h.
Methods, materials, issues, pedagogies; assessment, use and evaluation of mathematics software, other technology; implications for organization, development of course content. Same as 07S:231.

07E:233 History and Foundations of Social Studies Education 
3 s.h.
Historical, philosophical, social foundations of social studies education; recent debates over content and instructional processes, student research proposals. Same as 07S:233.

07E:234 Foundations of Mathematics Education 
2-3 s.h.
History of U.S. mathematics education, learning theory applied to teaching, learning mathematics; curriculum design, curriculum and achievement patterns in different countries; sex differences in achievement; research literature. Same as 07S:234.

07E:235 Current Issues in Mathematics Education 
2-3 s.h.
Recent curriculum developments, experimental programs, research relevant to classroom instruction; education trends that may have a significant impact on mathematics programs. Same as 07S:235, 22A6:195.

07E:255 Science Education: Issues, History, and Rationale 
2-3 s.h.
Critical analysis of research reports, philosophical statements, synthesis studies, issue mapping and research study in science education. Offered fall semesters. Same as 07S:255.

07E:256 Science Education: The Nature of Science 
3 s.h.
Topics in philosophy, psychology, history, sociology of science that are related to research, practice, current issues in science education. Offered spring semesters. Prerequisite: 097:128. Same as 07S:256.

07E:257 Science Education: Teaching, Learning, and Curriculum Models 
2-3 s.h.
Teaching strategies, instructional models, curriculum theory as they relate to science teaching in elementary, secondary, college settings. Offered fall semesters. Same as 07S:257.

07E:258 Science Education: Research Models and Conceptual Schemes 
3 s.h.
Models of research design and major research efforts in science education, emphasis on current reports and yearly review of science education research. Offered spring semesters. Same as 07S:258.

07E:264 Early Literacy Development and Instruction 
2-3 s.h.
Understanding of early reading and writing experiences, relationship of reading to other communication areas; knowledge of instructional approaches, techniques, materials, assessment procedures, interrelationship of home and school experiences; identification of current and crucial issues and relevant research.
07E:265 Reading and Writing Across Intermediate Grade Classes 3 s.h.
Reading with comprehension, provision for individual differences, research in reading, extension of skills taught in primary grades; for teachers, principals, supervisors.

07E:267 Inquiry-Based Curriculum Development in Early Childhood and Elementary Classrooms 3 s.h.
Theoretical and practical organization of developmentally appropriate curricula and teaching methods to promote learning.

07E:268 Curriculum Development for Young Children 3 s.h.
Current and crucial issues in curriculum development, research, delivery of services to children in group child care settings. Prerequisite: 07E:157 or equivalent.

07E:271 Advanced Reading Clinic Techniques 2-3 s.h.
Special instructional procedures for children with severe learning problems in reading; causes of reading disorders; educational prognosis for severely disabled readers. Prerequisite: 07E:164 or 07E:171 or 07E:174. Corequisite: 07E:272.

07E:272 Advanced Reading Clinic Practicum 2-3 s.h.
Practice in selecting and using special instructional procedures; timing clinical teaching techniques into a balanced developmental reading framework. Prerequisite: 07E:164 or 07E:171 or 07E:174. Corequisite: 07E:271.

07E:273 Reading Recovery I 1 s.h.

07E:274 Reading Recovery II 1 s.h.
Training for teachers; tutoring of first-grade children; effective moments by moment instructional decision making.

07E:275 Reading Recovery Assessment Training 1 s.h.
How to administer and analyze Marie Clay's Observation Survey; includes administration of the assessment to at least two first-grade children.

07E:277 Seminar: Social Studies Education 2 s.h.
Periodical literature, trends, curricular developments, research. For master's and doctoral candidates in social studies education. Same as 07S:277.

07E:280 Supervision of Instruction and Staff Development 2-3 s.h.
Teacher effectiveness research; formative and summative evaluation procedures, with emphasis on the supervision of student teachers; research on staff development and bringing about change in education. Same as 07S:285.

07E:281 Reading and Writing Process 1 s.h.
Foundations of the reading and writing process, including underlying language competencies, implications for instruction. Prerequisite: consent of instructor.

07E:282 Reading Recovery Teacher Leader I 1 s.h.
Introduction to reading recovery teacher leader role; theory, practice, leadership, organization, planning, supervision, evaluation. Prerequisite: consent of instructor.

07E:283 Reading Recovery Practicum I/Teacher Leader 1 s.h.
Reading recovery procedures, practices, effective teaching decisions. Prerequisite: consent of instructor.

07E:291 Individual Instruction in Early Childhood and Elementary Education 1 s.h.
Prerequisite: consent of instructor.

07E:300 Design and Organization of Curriculum 3 s.h.
Major issues, modern trends, sequential arrangement, organization of content; relationship of time allometries to implementation; utilization of instructional equipment, appraisal procedures; staff participation in curriculum development.

07E:304 Schooling in the United States 3 s.h.
Governance, finance, and policy structures that have influenced teaching and learning in public schools.

07E:306 Introduction to Research in Art Education 3 s.h.
Methods inquiry for research in art education and related disciplines; methods of research design.

07E:308 Seminar: Research and Current Issues 1 s.h.
For a specific curricular area: review of the literature, critical analysis of research, study of current issues and problems (see SIS for specific areas offered). Repeatable. Prerequisite: consent of instructor. Same as 07S:308.

07E:335 Seminar Mathematics Education 1 s.h.
Analysis of current research, research methodology, curriculum development in mathematics education. Repeatable. Same as 07S:335.

07E:340 Advanced Topics in Curriculum and Instruction 1 s.h.
Topics vary. Same as 07S:340, 07U:340.

07E:350 Seminar: Science Education 2 s.h.
National issues, program features, completed faculty and doctoral candidates' research. Same as 07S:350.

07E:355 Action Research in Science Education 2-3 s.h.
Same as 07S:355.

07E:365 Reading Clinic: Supervision 1 s.h.
Supervised counseling; grading and improving teacher performance in clinical practicums. Prerequisite: consent of instructor.

07E:370 Methods in Literacy Research 3 s.h.
Conceptual and practical exploration of selected research methods, including pilot data collection, analysis, and reporting. Repeatable. Same as 07S:370, 08P:300.

07E:381 Reading Difficulties 3 s.h.
Understanding of seminal and recent research, theories of learning, beginning reading instruction, reading difficulties that have influenced literacy education. Prerequisite: consent of instructor.

07E:382 Reading Recovery Teacher Leader II 1 s.h.
Advanced theory, practice in reading recovery teacher leader role. Prerequisite: consent of instructor.

07E:383 Reading Recovery Practicum II/Teacher Leader 1 s.h.
Reading recovery procedures, educational prognosis, analysis of teacher/student interactions. Prerequisite: consent of instructor.

07E:385 Practicum in College Teaching 2 s.h.
Prerequisite: consent of instructor.

07E:390 Research and Issues Program Implementation 3 s.h.
Research and issues in change process, theories and case studies related to reading recovery program implementation. Prerequisite: consent of instructor.

07E:391 Research Project 1 s.h.
Individual research projects in a specific curricular area, for advanced students. Repeatable. Prerequisite: consent of instructor.

07E:392 Field Service Project 1 s.h.
Individual field service project in a specific curricular area; for advanced students. Repeatable. Prerequisite: consent of instructor.

07E:393 M.A. Thesis in Early Childhood and Elementary Education 1 s.h.
Prerequisite: consent of instructor.

07E:405 Seminar: Child Art and Art Education 2-3 s.h.
Analysis and evaluation of current concepts of child art and art development, perception, creativity, art education; historical and current perspectives; musical elements, curriculum, organization; management of museums and related institutions; emphasis on American art education; professional ethics, legal responsibilities; school curriculum, organization; school law, finance; political, social issues. Prerequisite: admission to TEP. Same as 07E:101.

07E:406 Research in Art Education 2-3 s.h.
Individual research under supervision; applicable to thesis preparation and to doctoral research development. Repeatable. Same as 01E:406, 07S:406.

07E:407 Research: Science Education 2 s.h.

07E:415 Ph.D. Seminar in Language, Literacy, and Culture 3 s.h.
Historical and recent research and theory in literacy education. Repeatable. Prerequisite: consent of instructor. Same as 07S:415, 08P:425.

07E:493 Ph.D. Thesis in Early Childhood and Elementary Education 1 s.h.
Prerequisite: consent of instructor.

Secondary Education

07S:020 Academic Seminar I 3 s.h.
IowaLink seminar. Prerequisite: first-year standing. Same as 08P:020.

07S:021 Academic Seminar II 3 s.h.
IowaLink seminar. Prerequisite: first-year standing. Same as 08P:021.

07S:090 Introduction and Practicum: Art 2 s.h.
Experience observing and assisting art teachers and students in elementary or secondary schools; four to six hours per week in the school plus on-campus class meetings. Prerequisite: admission to TEP.

07S:091 Orientation to Secondary Education 0-1 s.h.
Overview, including options for student teaching, classroom observation, lesson planning, classroom management, performance indicators, INTASC standards, blood borne pathogens, professional ethics. Eight weeks.

07S:094 Introduction and Practicum: Journalism 3 s.h.
Experience in secondary schools. Prerequisite: admission to TEP.

07S:095 Introduction and Practicum: Mathematics 3 s.h.
Experience designing and teaching lessons that have varying instructional intent and that use multiple instructional strategies; study and practice methods of classroom management; 30-40 hours in cooperating schools. Prerequisite: admission to TEP.

07S:096 Introduction and Practicum: Music 2 s.h.
Experience observing and assisting music teachers and students in elementary or secondary schools; six hours per week in the school plus on-campus class meetings. Prerequisite: admission to TEP.

07S:100 Foundations of Education 3 s.h.
Overview of contemporary American education, preschool through secondary; including aims, history, philosophy of education; limited selection, legal responsibilities, school curriculum, organization; school law, finance, political, social issues. Prerequisite: admission to TEP. Same as 07E:100.

07S:101 Introduction to Education 3 s.h.
Basic orientation in the field of education; administrative organization, professional ethics, legal responsibilities, instructional procedures, contemporary problems at both elementary and secondary levels. Same as 07E:101.

07S:102 Technology in the Classroom 2 s.h.
Same as 07E:102.

07S:105 Advanced Methods: Art 3 s.h.
Art education theory and methods at elementary and secondary levels; art curriculum, unit, and lesson planning, evaluation, motivation, instructional materials; observational techniques.

07S:106 Foreign Language Education Practicum I 1 s.h.
Skill development for teaching languages in the early grades; curriculum design, test creation, microteaching with inservice teachers. Prerequisite: 07S:110. Corequisite: 07S:116. Same as 07E:106.

07S:107 Foreign Language Education Practicum II 1 s.h.
Practicum in lesson design, classroom management techniques, evaluation skills during work with inservice foreign language teachers. Corequisite: 07S:117. Same as 07E:107.

07S:108 World Music as Popular Music 3 s.h.
Survey of a broad selection of popular and world music from historical and current perspectives; musical elements, instruments, organization, performance, expression.

07S:110 Teaching K-12 Second Language Learners 3 s.h.
Second language learning and teaching in the multicultural classroom; influence of school setting, societal context. Prerequisite: admission to TEP. Same as 07E:110.

07S:111 Introduction and Practicum: Social Studies 2 s.h.
Leadership. Prerequisite: observing and assisting social studies teachers and students in secondary schools; four to six hours per week in the school plus on-campus class meetings. Prerequisite: admission to TEP.

07S:112 Introduction to Museology 3 s.h.
Introduction to history, philosophy, function, management of museums and related institutions; emphasis on American museums. GE: humanities. Same as 024:102, 097:115, 113:103, 169:102.

07S:113 Methods: Secondary School Journalism 3 s.h.
Methods and materials for teaching high school journalism; publication policies, staff organization, production schedules, technology; the Internet, and techniques for advising student publications; experience in simulated teaching situations. Offered fall semesters. Same as 019:101.

07S:114 Introduction and Practicum: English and Speech 3 s.h.
Experience observing and assisting English or speech teachers and students in secondary schools; 12 hours per week in the school plus on-campus class meetings.

07S:115 Methods: English 3 s.h.
Organizational techniques, methods, materials for teaching English; experience in simulated teaching situations during laboratory sessions, integrated with lectures and discussions. Prerequisite: 07S:114. Same as 08P:100.
07S:121 Environmental Science for the Gifted 1 s.h.
Environmental health research; principles of toxicology; process of environmental health risk assessment; experience collecting, organizing, and analyzing information.

07S:122 Math/Science Program for High Ability Students 1 s.h.
Unique challenges and opportunities confronted by teachers of high ability students; theory and practice, development of program outlines for implementation. Same as 07P:122.

07S:123 Differentiating Projects with Technology 1 s.h.
Use of digital tools to enrich student presentations; PowerPoint slide shows, presentations uploaded to World Wide Web, interactive multimedia presentations via HyperStudio. Same as 07E:123.

07S:125 Differentiated Curriculum for the Gifted 1 s.h.
Program options for K-12 gifted students; student abilities and needs linked with various curricula; case studies, school materials. Same as 07E:125.

07S:126 Reading for High-Ability Students 1 s.h.
Purposes and methods of reading instruction, with focus on developmentally appropriate needs of high-ability readers; genres of literature, enriched and accelerated reading curricula, role of reading in social and emotional development of gifted students. Same as 07E:126, 07U:126.

07S:128 Differentiating through Advanced Technology 1 s.h.
Multimedia and web-based tools and utilities that enrich classroom learning and facilitate presentations made by technologically proficient students; production and editing of digital video, computer graphics, advanced web-publishing and communication techniques; skill development. Same as 07E:128, 07U:128.

07S:129 Learning and Leadership for Gifted and Talented Students 1 s.h.
Same as 07E:129, 07U:129.

07S:130 Workshops for Secondary School Journalists
Programming and Curriculum for High Ability Students 1 s.h.
Supervised teaching experience in a single subject; secondary school setting.

07S:181 Issues in Foreign Language Education 3 s.h.
Theoretical perspectives of pivotal research issues at the forefront of foreign language education; systems available in foreign language programs for disseminating research.

07S:182 Language and Learning 2-3 s.h.
How language growth reflects and enables cognitive development; readings in psychology, anthropology, education; discussion of the relationship of language theory to schools of language instruction. Same as 07E:182, 08P:182.

07S:183 Second Language Classroom Learning 3 s.h.
Synthesis of empirical findings on children's and adults' learning of a second or foreign language; emphasis on theoretical underpinnings of approaches, methods, techniques in language teaching. Same as 07E:183, 039:177.

07S:184 Reading in a Second Language 3 s.h.
Current theory/research/practice in second language reading field; role of textual features and the reader in reading comprehension.

07S:186 Curriculum Foundations 2-3 s.h.
Elementary and secondary background developments in curriculum; definitions, historical perspective, philosophies, theories of knowledge, models, learning theories, directions of development and shaping forces; emphasis on development of a curriculum project. Same as 07E:186.

07S:187 Seminar: Curriculum and Student Teaching 1-3 s.h.
Discussions, role-playing, group and individual reports, analysis of critical incidents, classroom management, videotapes of student classroom performance pertinent to participants' student teaching experiences. Corequisite: student teaching.

07S:188 Practicum in Teaching and Curriculum Development in Gifted Education 1-6 s.h.
Experience in developing course materials for classes offered through the Belt Center. Same as 07C:188, 07E:188, 07U:188.

07S:189 Elementary School Special Subject Area Student Teaching 1-6 s.h.
Supervised teaching experience in the duties of regular classroom teachers under supervision of experienced personnel in secondary schools. Prerequisite: consent of instructor.

07S:192 Observation and Laboratory Practice in the Secondary School 1-6 s.h.
Supervised teaching experience in performing the duties of regular classroom teachers under supervision of experienced personnel in secondary schools. Prerequisite: consent of instructor.

07S:194 Methods: High School Reading 2-3 s.h.
Methods and materials used in teaching developmental reading in all junior and senior high school content areas.

07S:195 Teaching Reading in Secondary Content Areas 1 s.h.
Integration of reading strategies into secondary content areas for teacher candidates in secondary education.

07S:196 Topics in Curriculum and Instruction 1-3 s.h.
Prerequisite: consent of instructor. Same as 07E:196, 07U:196.

07S:197 Principles of Course Design for Secondary Language Instruction 3 s.h.
Contemporary views of second language curriculum design; guidelines necessary for the creation of prototypical curriculum units to be transposed into classroom ready forms; for individuals interested in foreign language materials development.

07S:198 Coaching Practicum 1-2 s.h.
Supervised experience in coaching interscholastic teams under the direction of certified secondary school coaches. Prerequisites: student completing teaching and coaching certification programs, admission to TEP, and consent of instructor.
075:199 Independent Study ar.  
075:200 Fundamentals of Second Language Assessment 3 s.h.  
How to write language tests; discussion of fundamental issues in development of new tests or selection of existing tests. 
075:201 Seminar: Current Topics in Music Education 1 s.h.  
Major areas of professional and research interest. Repeatable. 
075:202 Second Language Program Management 3 s.h.  
Preparation for supervising, administering foreign language programs at all levels; for precollege language teachers and graduate students. 
075:203 Second Language Planning in Education 3 s.h.  
Sociology and politics of national policies involving language, internationally; development of a research-based policy perspective on language issues in the country in which the student intends to teach. 
075:204 Literature for Children II 3 s.h.  
Current theory and research practice in reading and responding to children's literature; genre and topic vary. Same as OTE:204, OEP:204. 
075:205 Foundations of Education 3 s.h.  
Overview of American education, preschool through secondary; aims, mission, philosophy, professional ethics, legal responsibilities; school curriculum, organization, finance, school law, political and social issues. Prerequisite: admission to TEP. Same as OTE:205. 
075:206 Foundations of Music Education 3 s.h.  
Curriculum development, instructional materials, analysis of current teaching methods and techniques in school music programs; historical foundations of music education. 
075:207 Reading in Non-Roman Scripts 3 s.h.  
Theory and practice of reading in languages that use non-Roman alphabets, syllabary, logographic systems; reading in first and second language contexts; instructional and literacy development issues. Prerequisite: OTE:171 or OTE:270 or OTE:184 or equivalent. Same as 164-226. 
075:208 Designing Materials for Second Language Instruction 3 s.h.  
Critical perspective on creating and using media for second language learning and teaching; research on materials design, development of media. Prerequisite: 075:183. 
075:209 Cultural Curriculum 3 s.h.  
Culture's role in foreign/second language teaching; definition, pedagogy, assessment, and materials that allow culture to be taught and learned. Same as 164-229. 
075:210 International Program Summer Institute for Teachers 3 s.h.  
075:230 Workshop in School Mathematics 1-3 s.h.  
Recent developments in school mathematics teaching methods and curriculum relevant to a selected issue; one to three weeks of intensive examination, experience. Same as OTE:230. 
075:231 Technology in School Mathematics 2-3 s.h.  
Methods, materials, issues, pedagogy; assessment; use, evaluation of mathematics software, other technology; implications for organization, development of course content. Same as OTE:231. 
075:233 History and Foundations of Social Studies Education 3 s.h.  
Same as OTE:233. 
075:234 Foundations of Mathematics Education 2-3 s.h.  
History of mathematics education in the United States; learning theory applied to teaching, learning mathematics; curriculum design; curriculum and achievement patterns in different countries; future differences in achievement; research literature. Same as OTE:234. 
075:235 Current Issues in Mathematics Education 2-3 s.h.  
Recent curriculum developments, experimental programs, research relevant to classroom instruction, trends in education that may have a significant impact on mathematics programs. Same as OTE:235, 223M:195. 
075:236 The Teaching of Geometry 2-3 s.h.  
Current developments in teaching middle school/junior high and high school geometry; instruction, organization of content; research on teaching and learning. 
075:239 Teaching of Algebra 2-3 s.h.  
Current developments in curriculum and instructional methods in secondary school algebra; classroom use of the history of algebra, use of computer and calculators, implications of current research for the algebra classroom. 
075:240 Creative Thinking in Music 2 s.h.  
Review and analysis of creative literature about musical experience from theoretical and methodological perspectives; future trends for music instruction in composition, improvisation. 
075:241 Music Education Workshop 1 s.h.  
Materials and innovative instructional procedures for teaching instrumental music in public schools and colleges. Repeatable. Same as OTE:220. 
075:244 Individual Projects in Music Education 1-2 s.h.  
Projects of special concern to individual music teachers in the public schools. 
075:251 Preparation of Curriculum Materials for School Science 1-3 s.h.  
Preparation of instructional materials for science courses. Repeatable. 
075:252 Designing Strategies for Science Instruction 1-4 s.h.  
Strategies and instructional models characterizing science instruction at the elementary, secondary, college levels. Offered spring semesters and summer sessions. 
075:253 Recent Curriculum Developments in Science 1-3 s.h.  
Review of national curriculum efforts for school science, including materials, rationale, teaching strategies. Offered summer sessions. 
075:255 Science Education: Issues, History, and Rationale 2-3 s.h.  
Intermediate topics in philosophy and psychology of science, implications for research and practice in science education. Offered fall semesters. Prerequisite: previous work in philosophy or psychology of science. Same as OTE:255. 
075:256 Science Education: The Nature of Science 3 s.h.  
Historical and sociological understanding of the nature of science; applications of that understanding to problems and issues in science education. Offered spring semesters. Prerequisites: 097:128 and previous work in history or sociology of science. Same as OTE:256. 
075:257 Science Education: Teaching, Learning, and Curriculum Models 2-3 s.h.  
Theory and techniques for designing printed and laboratory material for science programs. Offered fall semesters. Same as OTE:257. 
075:258 Science Education Research Models and Conceptual Schemes 3 s.h.  
Same as OTE:258. 
075:260 Restructuring Science Courses 2-3 s.h.  
Constructivist learning model applied to existing science courses; emphasis on student-centeredness. Repeatable. 
075:261 Leadership and Change in School Science 2-3 s.h.  
Developing leadership skills for science education reform. Repeatable. 
075:266 Mentoring of Science Educators 2-3 s.h.  
Self-analysis, interpersonal communication, leadership, and mentoring versus evaluation. Repeatable. 
075:268 Science Concepts Applied to Local Issues 2-3 s.h.  
Science concepts as product of instructional process. 
075:277 Seminar: Social Studies Education arr.  
Periodical literature, trends, curricular developments, research in various aspects of social studies education; for master's and doctoral candidates in social studies education. Same as OTE:277. 
075:279 Advanced Research in Music Education 3 s.h.  
Design, performance, analysis, and reporting of music research. 
075:280 Workshop: Teacher Training for Advanced Placement Courses 1 s.h.  
Focus on a particular academic content area. Prerequisite: consent of instructor. 
075:281 Junior High School and Middle School Curriculum 2-3 s.h.  
Comparison of practices in junior high school and middle school: objectives and content in various subject areas; current trends, curriculum planning, development of a model program. 
075:285 Supervision of Instruction and Staff Development 2-3 s.h.  
Teacher effectiveness research; formative and summative evaluation procedures, with emphasis on the supervision of student teachers; research on staff development and bringing about change in education. Same as OTE:280. 
075:291 Secondary School Curriculum 2-3 s.h.  
Theory and development of secondary school curriculum; analysis of components of curriculum, emphasis on practices and issues in various subject areas since 1983. 
075:293 Individual Instruction in Secondary Education arr.  
Prerequisite: consent of instructor. 
075:300 Issues in Second Language Assessment 3 s.h.  
Theoretical and practical issues in assessment of English as an international language; factors that influence development and use of English as a second language assessment instruments worldwide. Prerequisites: OTE:220 and consent of instructor. 
075:306 Proposal Writing for Second Language Research 3 s.h.  
Procedures and techniques for writing research proposals at the doctoral level; written research proposal dealing with a question in second language teaching and learning. Prerequisite: consent of instructor. 
075:308 Seminar: Research and Current Issues arr.  
Literature review, critical analysis of research, current issues and problems for a specific curricular area. Repeatable. Same as OTE:308. 
075:315 M.A. Seminar: English Education arr.  
Significant developments in English education; primary and secondary readings. Prerequisite: consent of instructor. Same as OPE:405. 
075:333 Seminar on Teacher Education 3 s.h.  
History, structure, and politics of teacher education; current practice and agendas for reform; new developments in teacher assessment. 
075:335 Seminar: Mathematics Education arr.  
Analysis of current research, research methodology, curriculum developments in mathematics education; topics vary. Repeatable. Prerequisite: Ph.D. candidacy or consent of instructor. Same as OTE:355. 
075:340 Advanced Topics in Curriculum and Instruction arr.  
075:342 Philosophies of Music Education 3 s.h.  
Overview of 20th century philosophical trends that have influenced music education, including recent emergence of postmodern philosophy. 
075:350 Seminar: Science Education 0-2 s.h.  
Discussion of completed faculty and doctoral candidates' research, national issues, program features. Same as OTE:350. 
075:355 Action Research in Science Education 2-3 s.h.  
Same as OTE:355. 
075:367 Seminar: Current Issues in Art Education 2-3 s.h.  
075:368 Ph.D. Seminar: Current Research in Science Education 2-3 s.h.  
Significant ongoing research programs in the field; emphasis on faculty research. 
075:370 Methods in Literacy Research 3 s.h.  
Conceptual and practical exploration of selected research methods, including pilot data collection, analysis, and reporting. Repeatable. Same as OTE:370, OEP:300. 
075:385 Practicum in College Teaching arr.  
Prerequisite: consent of instructor. 
075:391 Problems of Curriculum Planning 2-3 s.h.  
Organizing and conducting programs of curriculum review and improvement; techniques for developing curriculum materials; typically includes field experience, examination of current curriculum issues. 
075:392 Field Service Project in Secondary Education arr.  
Prerequisite: consent of instructor. 
075:393 Master's Degree Thesis arr.  
Prerequisite: consent of instructor. 
075:405 Seminar: Child Art and Art Education 2-3 s.h.  
Analysis and evaluation of current concepts of child art and child development, perception, creativity, art education; historical development of theories of child art, child development, art education. Same as OTE:405. 

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07U:406 Research in Art Education  
arr.  
Individual research under supervision; applicable to thesis preparation, doctoral prospectus development. Repeatable. Same as O1E:406, O7E:406.

07U:407 Research: Science Education  
arr.  
Planning of individual research projects by M.S. and Ph.D. candidates.

07U:415 Ph.D. Seminar in Language, Literacy, and Culture  
arr.  
Historical, recent research and theory in literacy education. Repeatable. Prerequisite: consent of instructor. Same as O7E:415, O8P:425.

07U:445 Social and Psychological Factors in Music Education  
t. h.  
Social and psychological factors that affect curriculum and instructional practices in music. Prerequisite: doctoral standing in music education or consent of instructor.

07U:493 Ph.D. Thesis  
arr.  
Prerequisite: consent of instructor.

Special Education

Courses at the 100 level are open to students in education and related disciplines.

07U:100 Foundations of Special Education  
t. h.  
Students with disabilities, gifted and talented; strategies for effective treatment, collaboration between regular and special education teachers, remediation of academic, behavioral, social problems. Prerequisite: admission to TEP.

07U:101 Methods: Child/Adolescents with LD and BE  
t. h.  
Strategies for effectively teaching elementary and secondary students with learning disabilities and behavior disorders; emphasis is on practical, empirically verified techniques. Prerequisite: admission to TEP.

07U:110 Teaching Deaf and Hard of Hearing Students  
t. h.  
How to recognize and respond to the deaf population and how they learn best and are taught; teaching varied subject matter that addresses diversity in small groups of deaf students; testing, use of technology, ethnic and cultural diversity, classroom management, educational program options. Taught in American Sign Language and English. Offered fall and spring semesters. Same as 158:110.

07U:115 Introduction: Strategist I (Elementary)  
t. h.  
Teaching students with mild disabilities in elementary resource placements; current trends and issues, basic and theoretical approaches, implications of federal and state statutes, multidisciplinary team approaches to providing adequate educational programming. Prerequisite: admission to TEP.

07U:116 Methods: Strategist I (Elementary)  
t. h.  
Methods and materials for students with mild disabilities in elementary resource placements; effective school collaboration; empirically validated strategies. Prerequisite: admission to TEP.

07U:117 Improving Outcomes for People with Disabilities  
t. h.  
Theory and practice of interdisciplinary programming; roles and responsibilities of different disciplines serving persons with disabilities, cooperative service strategies, case management, individual program planning; includes case studies, role plays, simulations. Prerequisite: consent of instructor. Same as 068:117, 096:117.

07U:121 Transition and Related Issues  
t. h.  
Curriculum, programs, and delivery systems that help persons with disabilities move from preschool to elementary, elementary to middle school, middle school to high school, and to postsecondary life; emphasis on ecological and task analysis, transition planning strategies, interagency collaboration, self-determination, access to resources and support services.

07U:122 Supervised Teaching: Elementary Strategist I  
t. h.  
Student teaching at the elementary level in a program for students with mild to moderate disabilities; Prerequisites: elementary education major and consent of instructor.

07U:126 Reading for High-Ability Students  
t. h.  
Purpose and methods of reading instruction, with focus on developmentally appropriate needs of high-ability readers; genres of literature, enriched and accelerated reading curricula, role of reading in social and emotional development of gifted students. Same as O7E:126, O7S:126.

07U:128 Differentiating through Advanced Technology  
t. h.  
Multimedia and web-based tools and utilities that enrich classroom learning and facilitate presentations made by technologically advanced students; production and editing of digital video, computer-based, advanced web-publishing and communication techniques; skill development. Same as O7E:128, O7S:128.

07U:129 Learning and Leadership for Gifted and Talented Students  
t. h.  
Same as O7E:129, O7S:129.

07U:130 Exceptional Persons  
t. h.  
Students at all levels of exceptionality, from talented and gifted through profoundly disabled, special needs populations.

07U:131 Introduction to Learning Disabilities  
t. h.  
The field’s status, history, theory, definitions, teaching approaches, programs; unique topics of elementary and secondary school-age students; emphasis on cognitive processes.

07U:132 Introduction to Behavioral Disorders  
t. h.  
Behavioral and emotional issues, definitions, history, and problems of classification, origins of disorders, basic assessment and intervention approaches, school placement, programming for elementary and secondary students.

07U:133 The Culturally Different in Diverse Settings  
t. h.  
Diversity in society; laws—past and present, experiences, incidents, how they affect society.

07U:134 Parent-Teacher Communication  
t. h.  
Realities of working with parents; interpersonal skills; options for parent support services. Same as O7E:134, O7P:134.

07U:135 Mental Retardation  
t. h.  
Causes and treatment of mental retardation; current issues in mental retardation, educational programming and the role of schools in teaching children with mental disabilities.

07U:136 Home/School/Community Partnerships  
t. h.  

07U:137 Introduction to Educating Gifted Students  
t. h.  
History, identification, characteristics, programming, educational methods and materials for the gifted; discussion on readings, films, and guest speakers; practical project. Same as O7C:137.

07U:138 Assessment of Learning Problems  
t. h.  
Effective use of varied formal and informal assessment techniques for students with learning and behavior problems; techniques that inform teaching decisions. Prerequisite: admission to TEP.

07U:140 Characteristics of Disabilities  
t. h.  
Etiologies of mild/moderate disabilities; current educational trends; educational alternatives; importance of multidisciplinary team, psychological and social-emotional characteristics of individuals.

07U:148 Adaptations for Students with Multiple Disabilities  
t. h.  
Enhancing participation of persons with multiple disabilities; partial participation, individualized adaptations; positioning, handling techniques; integration of therapy with educational programs.

07U:167 Introduction to Assistive Technology  
t. h.  
Same as O7C:185.

07U:188 Practicum in Teaching and Curriculum Development in Gifted Education  
t. h.  
Includes experience in developing course materials for classes offered through the Bein Center. Same as O7C:188, O7E:188, O7S:188.

07U:190 Interdisciplinary Issues in Disabilities  
t. h.  
Critical issues related to interdisciplinary delivery of services to persons with developmental disabilities; observation and participation in staffing and consultation, opportunity for related community experiences.

07U:193 Independent Study in Special Education  
arr.  
Specialized study of topics not included in other courses. Prerequisite: consent of instructor.

07U:196 Topics in Curriculum and Instruction  
arr.  
Prerequisite: consent of instructor.

07U:201 Strategist II Methods - Elementary  
t. h.  
Methods and materials; strategies for assessing behavior, academic achievement, social skills; instructional resources; consultation with parents and peers; collaboration strategies; empirically validated strategies. Prerequisites: O7U:131, O7U:132, and O7U:238.

07U:203 Strategist II Methods - Secondary  
t. h.  
Methods, materials, accommodations; practical skills for working in school/community settings; academic, affective, behavioral assessment; communication skills, management strategies, innovative program models, transition and career education planning; empirically validated strategies. Prerequisites: O7U:131, O7U:132, and O7U:238.

07U:206 Practicum with Exceptional Persons  
arr.  
Practicum experience with students with disabilities; experiences differ depending upon student’s program of study. Prerequisite: consent of instructor.

07U:208 Supervised Teaching: Elementary Behavior Disorders  
t. h.  
Student teaching. Prerequisites: special education major and consent of instructor.

07U:209 Seminar: Graduate Supervised Teaching  
t. h.  
For students enrolled in graduate student teaching practicum. Prerequisites: special education major and consent of instructor.

07U:210 Characteristics and Programs: Persons with Severe Behavioral Disorders  
t. h.  
Characteristics of children and youth with severe behavioral disorders; emotional implications of these characteristics for functional life needs and school performance. Prerequisite: O7U:132 or consent of instructor.

07U:212 Characteristics and Programs: Persons with Autism  
t. h.  
Introduction to autism; definition, assessment, research information, communication skills, speech, language development of persons with autism. Prerequisite: consent of instructor.

07U:214 Methods: Children/Adolescents with Mild/Moderate Mental Disabilities  
t. h.  
Classroom management; inclusion, behavioral management, change strategies; methods/strategies for working with parents, regular classroom teachers, support services personnel, paraprofessionals; transition from schools to community; career/vocational education.

07U:216 Methods: Resource Teaching  
t. h.  
Methods, materials for working with students with mild disabilities in elementary and secondary resource programs; emphasis on collaboration, problem solving. Prerequisites: O7U:136, O7U:132, O7U:135, and O7U:238.

07U:222 Supervised Teaching: Elementary Resource Programs  
t. h.  
Student teaching. Prerequisites: special education major and consent of instructor.

07U:225 Supervised Teaching: Elementary Multicultural Special Class  	n. h.  
Student teaching. Prerequisites: special education major and consent of instructor.

07U:226 Supervised Teaching: Secondary Multicultural Special Class  	n. h.  
Student teaching. Prerequisites: special education major and consent of instructor.

07U:228 Supervised Teaching: Secondary Behavior Disorder  	n. h.  
Student teaching. Prerequisites: special education major and consent of instructor.

07U:230 Behavioral and Social Interventions  
t. h.  
Individual behavioral management, behavioral change strategies, and social interaction strategies; methods, and techniques for individuals with exceptional learning needs.

07U:231 Strategist I Methods  
t. h.  
Methods and strategies K-12 that include models for providing curricular and instructional methodologies used in educating mildly and moderately disabled, collaboration and consultation models, empirically validated strategies.

07U:232 Supervised Teaching: Secondary Resource Programs  
t. h.  
Student teaching. Prerequisites: special education major and consent of instructor.

07U:236 Administration of Students with Special Needs  
t. h.  
Provides a foundation for skill practice in tasks performed by directors of special education, for prospective directors of special education and school administrative personnel. Same as O7B:236.
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Graduate Programs

Educational Administration

The program in educational administration prepares individuals for leadership positions. Its programs lead to the M.A., Ed.S., and Ph.D. degrees and to administrative licensure. Educational administration offers joint programs with other divisions in the College of Education and with other colleges at the University.

Licensure

To be eligible for recommendation by The University of Iowa for licensure in Iowa as a principal or superintendent, students must complete the appropriate program. The specific requirements for each program are available through the division office and the College of Education Office of Teacher Education and Student Services.

M.A. in Educational Administration

The M.A. program prepares individuals for appointments as school principals and office administrators, and for positions in area education agencies and state departments of education. It is a nonthesis program requiring a minimum of 32 s.h.

ADMISSION

Applicants must satisfy Graduate College requirements and are selected through a faculty review process. Factors considered include recommendations, grade-point average, Graduate Record Examination (GRE) General Test scores, and other evidence of academic ability and professional promise.

CORE REQUIREMENTS

With the aid of an adviser, the student prepares a plan of study that includes the following core requirements.

07B:201 Foundations of School Administration 3 s.h.
07B:236 Administration of Students with Special Needs 3 s.h.
07B:260 Contemporary Management Strategies for the K-12 Principal 3 s.h.
07B:261 The Principalship 3 s.h.
07B:285 School and Community Relationships 3 s.h.
07B:298 Legal Aspects of School Personnel 3 s.h.
07B:381 Analysis and Appraisal of Curriculum 2-3 s.h.
07B:383 Supervision and Evaluation 3 s.h.

For Iowa principalship licensure, students must meet the human relations requirement of the state of Iowa. Students must complete the core requirements listed above and required field
service projects (07B:401, 07B:402, and 07B:403). Candidates may choose electives approved by the adviser.

**COMPREHENSIVE EXAMINATIONS**

The M.A. comprehensive examination consists of two 3-hour examinations: one in educational administration and one in a specialized area in either educational administration or a related field. Students must be registered in the Graduate College during the semester in which they take the comprehensive examination if they plan to graduate that semester.

### Ed.S. in Educational Administration

The Ed.S. program prepares candidates for administrative appointments in school districts, area education agencies, state departments of education, and the U.S. Office of Education. It also assists school administrators in upgrading their administrative skills to the level of superintendent of schools. Students seeking licensure must complete a program approved by an adviser to meet state of Iowa licensure requirements.

**ADMISSION**

Applicants must satisfy Graduate College requirements and are selected through a faculty review process. Factors considered include recommendations, grade-point average, Graduate Record Examination (GRE) General Test scores, and other evidence of academic ability and professional promise.

**CORE REQUIREMENTS**

- **Methods 3 s.h.**
- **Education 3 s.h.**
- ** theories**
- **Policy and Planning 3 s.h.**
- **Measurement 3 s.h.**
- **Administration 3 s.h.**
- **Programs and Personnel 3 s.h.**
- **Financing Public Education 3 s.h.**

**PROGRAM EMPHASIS**

Students must complete the balance of their minimum required semester hours (minus electives) in one of the following emphasis areas. Courses specifically listed in each area of specialization are the required courses.

**Elementary School Administration**

- **07P:150 Introduction to Educational Measurement 3 s.h.**

**Secondary School Administration**

- **07P:150 Introduction to Educational Measurement 3 s.h.**

**General School Administration**

- **07B:205 Collective Bargaining in Education 3 s.h.**
- **07B:295 Financial Management of Local School Systems 3 s.h.**
- **07B:404 Field Service Project in Central Administration 1-3 s.h.**
- **07P:143 Introduction to Statistical Methods 3 s.h.**

**ELECTIVES**

Students choose electives completing the 62 s.h. requirement for the Ed.S. degree. They may choose electives for specialization in fields such as staff personnel, business affairs, instruction, theory, legal aspects, curriculum, and information systems.

**RESEARCH**

All candidates for the Ed.S. degree must complete a formal research paper (4 s.h.) that deals with a specific problem in school administration or instruction.

**COMPREHENSIVE EXAMINATION**

The comprehensive examination for the Ed.S. degree consists of two 3-hour examinations: one in educational administration and the other in a specialized area in either educational administration or a related field. Students must be registered in the Graduate College during the semester in which they take the comprehensive examination if they plan to graduate that semester.

### Ed.S. in Special Education Administration

The Education Specialist program in special education administration is offered jointly with the Division of Curriculum and Instruction. The program provides sufficient training and experience to enable graduates to obtain entry-level positions in special education administration. The career focus of the program is on middle management positions such as supervisor and assistant director. Successful completion of the program qualifies the student for licensure in Iowa to serve as a supervisor of special education (State of Iowa Endorsement 233, 238) or director of special education (State of Iowa Endorsement 239). It also qualifies the student for licensure in general administration (State of Iowa Endorsement 171). The program requires a minimum of 62 s.h.

Admission to the program is limited by available resources. Five to eight new students are admitted each year. In addition to the general requirements, admission requires a master's degree, licensure in some area of teaching exceptional children, qualification for a consultant's endorsement, and classroom experience as a teacher or equivalent experience.

**Ph.D. in Educational Administration**

The Ph.D. program prepares students for leadership positions at all levels of education (school administration, research, teaching at the college or university level) through individually designed programs that include course work in related disciplines and research pursuits. Emphasis is placed on the integration of theory and practice in the program.

The Ph.D. in educational administration is a flexible program that prepares professionals for leadership positions at all levels of administrative practice and for academic teaching and research positions. Sufficient course work and related experiences are planned individually. Students are expected to achieve competence in the areas of educational program planning, finance and governance, leadership theory, evaluation, and research methodologies that include statistical methods. They also must gain expertise in areas of specialized program and personnel policy analysis.

Course content in the Ph.D. program is divided into prerequisites, a core of common competencies, at least one specialization in the administrative field, cognate study outside the college, research skill development, and a research dissertation.

Commonly selected specialization areas are general administration, elementary school administration, secondary school administration, systems analysis and research, school finance, curriculum, legal aspects, theory, and school personnel. Students must demonstrate proficiency in two research tool areas.

**ADMISSION**

Applicants must satisfy Graduate College requirements and are selected through a faculty review process. The program admits a maximum of 10 students in the fall semester or the preceding summer session. Factors considered include recommendations from college or university faculty that speak to the candidate's scholarship and potential for academic success, grade-point average, and Graduate Record Examination (GRE) General Test scores. Also considered is a written statement addressing one of the following topics: personal philosophy of education, steps in the professionalization of teaching, current educational issues and their administrative impact, or the role of administration in educational organizations.

Complete application materials must be submitted by December 1 for summer session or fall semester admission. Admission decisions are made by the program faculty; applicants are notified by February 15.

**CORE COURSES**

Core courses are designed to provide the necessary background for further study, including research in specialized areas, and to develop competencies common to the functional areas of school administration. The four core courses integrate planning of educational personnel programs, analysis of the politics and economics of governance and the financing of public education, evaluation of administrative leadership theories, and options in research methodology and quantitative analysis.

Each core course carries 3 s.h. of credit, is open only to Ed.S. and Ph.D. students, and requires the development and practice of interaction, reading, and writing skills.

Seminars designed primarily for doctoral candidates are offered to supplement each functional core area. Scholarship is reflected in writing, reading, and research in all doctoral seminars.

**COGNATES**

Students specializing in administration must complete a 9 s.h. cognate outside the College of Education with the adviser's approval.
COMPREHENSIVE EXAMINATIONS

Doctoral students must satisfactorily complete an extensive six-hour comprehensive examination in the six common areas of educational administration and a three-hour examination based on the student’s areas of specialization and approved by the student’s adviser and the division chair. To be eligible to take the Ph.D. comprehensive examination, students must be completing or must have completed the doctoral core courses and the research tool requirements. Students must be registered in the Graduate College for the semester during which they take the exam, and they may not register for more than 3 s.h. of Ph.D. thesis credit during that semester. They also may not earn dissertation credit before that semester. No Ph.D. comprehensive examinations are held during summer sessions.

Students pursuing doctoral programs in areas other than educational administration who want to use some aspect of the educational administration program as an area of concentration for which they would request a comprehensive examination should consult with an adviser in the Division of Educational Policy and Leadership Studies early in their study sequence.

Any of the areas of specialization open to doctoral students in educational administration are open to other doctoral students who meet the necessary prerequisites for specific courses. Students should complete approximately 12 s.h. in one area of specialization before requesting a comprehensive examination. If the student decides to use a field within educational administration as a related comprehensive area, he or she should plan to complete approximately 18 s.h. of diversified course work in educational administration.

RESEARCH DISSERTATION

All students must write a formal dissertation prospectus and submit it for approval first by their adviser and then by the members of their doctoral committee. Student and adviser determine when the prospectus is complete. A final evaluation of the prospectus and approval to proceed may or may not be granted at the end of the prospectus committee meeting. Dissertation prospectus meetings are not held during summer sessions.

Students must accumulate 10 s.h. of dissertation research credit. The doctoral program culminates with oral defense of the dissertation. Students usually take the examination within a month of their anticipated graduation. They must be registered at The University of Iowa during the session in which they graduate.

RESIDENCY

Each doctoral candidate must successfully complete two semesters (minimum of 9 s.h. on campus) to fulfill the residency requirement. The following sample Ph.D. program requires a minimum of 90 s.h. and assumes that students enter with an M.A. and 32 s.h. of graduate credit.

Social Foundations of Education

Social foundations of education is an interdisciplinary program designed to enhance students’ ability to analyze the influence of social, historical, and philosophical forces on the formal educational enterprise. Major areas of specialization are comparative/international education, history of education, philosophy of education, policy studies, and sociology of education.

General requirements for admission are as stated by the Graduate College. A personal interview with one or more members of the social foundations faculty is desirable and may be required. An undergraduate and/or graduate emphasis in philosophy, the humanities, or the social sciences is strongly recommended. Students must maintain an overall g.p.a. of at least 3.00 to remain in the program.

M.A. in Social Foundations of Education

Students in the M.A. program must take a minimum of 18 s.h. in social foundations, which should include at least two courses each in three of the five areas of specialization. The remainder of the required 32 s.h. of course work must be in a concentration area appropriate to a student’s career and academic goals. For example, students interested in philosophy of education usually take these courses in the Department of Philosophy. Students are not required to write a thesis.

Masters degree students must satisfactorily complete a six-hour comprehensive examination covering their three areas of study in the social foundations program and their outside area. The examining committee may elect to hold an oral examination after the exam.

Ph.D. in Social Foundations of Education

The Ph.D. program requires a minimum of 90 s.h. Students are required to take a minimum of 24 s.h. in social foundations, which must include at least 12 s.h. in the major area of specialization and a minimum of 6 s.h. from each of two additional areas. In addition, students must take at least 9 s.h. of related course work in a concentration area.

Approximately one-third to one-half (30-45 s.h.) of each student’s program is devoted to in-depth course work, such as history, philosophy, political science, or sociology. These sequences are individually planned by the student with the aid of his or her adviser and suggestions from the appropriate department(s).

Five research courses are required. They are chosen in accordance with the individual candidate’s research interests and program. One of these must be in quantitative methodologies (e.g., graduate-level statistics, microcomputing, demographic analysis), and one must be in qualitative analysis (e.g., philosophy of science, philosophy of social science, historiography, qualitative or case study methodologies, foreign language). The third course may be either quantitative or qualitative.

In addition, all students are required to successfully complete 07B:155 Critical Thinking and 07B:206 Research Process and Design. Dissertation research is usually taken for 12-15 s.h. of credit.

COMPREHENSIVE EXAMINATION

Doctoral students must satisfactorily complete an extensive comprehensive examination, including three examinations: The first is in the student’s major area of study, the second is in the student’s other two areas of concentration within social foundations, and the third is in the student’s outside area of study and is prepared by faculty outside the social foundations program. These exams are followed by an oral examination.

RESEARCH DISSERTATION

All students must write a formal dissertation prospectus and submit it for approval first by their adviser and then by the members of their doctoral committee. Students and their advisers determine when the prospectus is complete.

Students must accumulate 12 s.h. of dissertation research credit. The doctoral program culminates with a final oral defense of the dissertation. Students must be registered at The University of Iowa during the session in which they graduate.

RESIDENCY

Each doctoral candidate must successfully complete two semesters (a minimum of 9 s.h. per semester) on campus to fulfill the residency requirement.

Higher Education

Postsecondary and continuing education in the United States represents an extensive and complex set of phenomena. The academic programs in higher education encompass that complexity. Degrees are offered at all levels, with emphasis on both research and practice. Preparation for either teaching or administration is available. The teaching, research, and service activities of the faculty and the work of the graduates of the several degree programs illustrate that education beyond the high school level continues in a variety of ways for all ages and in many different settings.
**M.A. in Higher Education**

The M.A. program in higher education prepares individuals for entry- and middle-level administrative, instruction, management, continuing education, and policy positions in two- and four-year institutions. It is appropriate preparation for positions such as assistant dean, assistant to the president, director, and division or program chair in selected areas. It is a nonthesis program.

**ADMISSION**

Applicants for admission must satisfy the requirements of the Graduate College. Candidates are selected on the basis of grade-point average, Graduate Record Examination (GRE) General Test scores, and promise for professional growth. Transcripts, GRE scores, three letters of recommendation, and a statement of educational goals are required.

Complete applications should be submitted well in advance of the intended semester of admission. Contact the department for admission dates.

**REQUIREMENTS**

The M.A. program requires a minimum of 32 s.h. Students take eight hours of written examinations based on the core, concentration, and specialization, according to the plan of study developed individually for each student.

Areas of concentration in which examinations may be written are administrative practices, community college, and policy studies. Students majoring in another field who want to complete a related field in higher education and to be eligible to write a related field examination should consult with a higher education adviser early in their studies. Plans of study are developed individually.

**Ed.S. in Higher Education**

The Ed.S. program provides advanced graduate study in higher education in the areas of administration, community college, and policy studies for students usually not planning to continue for the doctorate. The specialist degree also may be awarded upon completion of a joint program that consists of a minimum of 60 s.h. of graduate work in higher education and an academic field, or upon completion of a higher education sequence following a master's degree program.

**ADMISSION**

Applicants for admission must satisfy the general requirements for admission to the Graduate College. Candidates are selected on the basis of grade-point average, GRE General Test scores, and promise for professional growth. Transcripts, GRE scores, three letters of recommendation, and a statement of educational goals are required.

Complete applications should be submitted well in advance of the intended semester of admission. Contact the department for admission dates.

**REQUIREMENTS**

Requirements for the Ed.S. major in higher education are as follows.

Students must earn at least 18 s.h. in professional education and related fields. This work must include a structured internship determined in consultation with the adviser to be appropriate for one of the following areas: administration, community college, policy studies, or community college teaching (joint program only).

In addition, the program of study must include at least 28 s.h. in the student’s specialization area, determined in consultation with the adviser, and 10 s.h. of electives, also approved by the adviser.

Students also must earn 4 s.h. of research credit in 07B:395 Educational Specialist Research.

Two 3-hour comprehensive examinations are required: one covering the field of higher education in general, and one covering one of the concentrations in higher education, reflecting an area of specialization within the concentration. These exams may be followed by an oral examination.

**RELATED FIELD**

Students majoring in another field who want to complete a related field in higher education should consult with the higher education adviser early in their studies. Plans of study are developed individually.

**Teaching Internship (Joint Program Only)**

Program participants teach half-time for a full semester at cooperating community colleges under the supervision of an experienced faculty member in that college and with field supervision from The University of Iowa. Interns participate in the academic life of the host community college, and they often gather data for their Ed.S. research project during the internship. Participants must be willing to travel to a community college and reside there for the one-semester program.

**Ph.D. in Higher Education**

The Ph.D. program is designed for persons who may serve as administrators, specialists, researchers, or teachers in postsecondary institutions or related public or private agencies. It requires a minimum of 90 s.h. beyond the baccalaureate degree.

The program in higher education offers three areas of concentration: administration, community college, and policy studies.

**ADMISSION**

Applicants for admission to the doctoral program must satisfy the requirements of the Graduate College. Candidates are selected on the basis of grade-point average, GRE General Test scores, and promise for professional growth. Transcripts, GRE General Test scores, three letters of recommendation, and a statement of educational goals are required.

Ph.D. students are considered for admission once a year. Complete application materials must be received by December 1 for the following summer session or fall semester admission.

**REQUIREMENTS**

All higher education students are expected to participate in the core experiences (21-24 s.h.). In addition, candidates choose one area of concentration and must earn 16-24 s.h. of credit in that area. Candidates choose a related field of at least 12 s.h. or a minor (up to 30 s.h.), which may be met by appropriate previous course work at the M.A. level that complements the area of concentration. The dissertation research (12-15 s.h.) must deal with a specific problem related to the area of concentration.

These four components—core, concentration, minor and/or related fields, and dissertation research—constitute a major part of the typical doctoral program and give students the opportunity to specialize in one or more areas of interest.

In addition, students are required to develop research skills appropriate to their dissertation project. Students may take supplementary course work outside the division related to their concentration.

Comprehensive examinations for the doctorate cover the general area of higher education, the candidate’s mastery of research skills appropriate to his or her proposed dissertation topic, and the candidate’s area of concentration.

Students must complete a preliminary research proposal before applying to take the comprehensive examination. The paper should demonstrate the student’s ability to identify a scholarly study topic; formulate a scholarly problem or conceptual framework for addressing the topic; show competence in using relevant scholarly literature; and reflect writing and organizational skills necessary to complete a dissertation.

**Student Affairs Administration and Research**

The Ph.D. in student affairs administration and research provides in-depth preparation for individuals who intend to serve in leadership positions in student affairs administration, graduate student affairs preparation programs, and/or research about college students and student affairs practice. The Ph.D. is interdivisional, offered jointly by the Division of Counseling, Rehabilitation, and Student Development and the Division of Educational Policy and Leadership Studies. For more information, see “Counseling, Rehabilitation, and Student Development” in this section of the Catalog.

**Courses**

- **07B:015 Introduction to Leadership** 3 s.h.
  - Leadership and the skills for use in college and in developing academic and career goals; multiculturalism, communication, motivation; self-esteem, ethical decision making. Prerequisite: first-year standing.

- **07B:093 Individualized Instruction** arr.
  - Prerequisite: consent of instructor.

- **07B:099 Politics of Education** 2-3 s.h.
  - Political setting of education at several levels—federal, state, and local—and consideration of factors that condition internal school and district politics. GE: social sciences.

- **07B:100 Issues and Policies in Higher Education** 3 s.h.
  - Current selected functions, issues, policies of American higher education.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>07B:101</td>
<td>Professional Seminar: Social Foundations</td>
<td>1 s.h.</td>
<td>Introduction to the five disciplinary components of social foundations; professional development of social foundations scholars; workshop on dissertation, other student-authored scholarly papers.</td>
</tr>
<tr>
<td>07B:102</td>
<td>History of American Education</td>
<td>2-3 s.h.</td>
<td>American educational history, with emphasis on conflicting historical interpretations of pivotal events and educational movements; contemporary reform efforts examined in historical perspective.</td>
</tr>
<tr>
<td>07B:104</td>
<td>Education in the Third World</td>
<td>2-3 s.h.</td>
<td>Educational implications of various development issues, including role of media, and multinational corporations and foreign aid; educational dilemmas currently facing Third World governments.</td>
</tr>
<tr>
<td>07B:110</td>
<td>Administration and Policy in Gifted Education</td>
<td>1 s.h.</td>
<td>Policy, administrative, evaluation issues in developing and maintaining gifted programs in a school setting; participants develop gifted program and policies for a school; for school executives and coordinators of gifted programs.</td>
</tr>
<tr>
<td>07B:111</td>
<td>Evaluation of Gifted Programs</td>
<td>1 s.h.</td>
<td>Fundamentals of program evaluation essential for exemplary gifted programs.</td>
</tr>
<tr>
<td>07B:113</td>
<td>Staff Development for Gifted Programs</td>
<td>1 s.h.</td>
<td>Planning, content, and delivery of staff development regarding gifted students and their needs.</td>
</tr>
<tr>
<td>07B:177</td>
<td>Foundations of Vocational Education</td>
<td>2-3 s.h.</td>
<td>Vocational education programs, with emphasis on federal and state programs, educational services, career development, job satisfaction, and changing needs of business and society.</td>
</tr>
<tr>
<td>07B:119</td>
<td>Introduction to the Law of Student Services</td>
<td>3 s.h.</td>
<td>Overview of law related to student services: basic legal process, case law for understanding and working with legal issues; for practitioners in postsecondary settings.</td>
</tr>
<tr>
<td>07B:120</td>
<td>Teaching in a Culturally Diverse Society</td>
<td>3 s.h.</td>
<td>Issues in education and individual educators’ own practice related to increasing cultural, racial, and linguistic diversity; challenges, concerns.</td>
</tr>
<tr>
<td>07B:123</td>
<td>History of Ethnic/Minority Education</td>
<td>3 s.h.</td>
<td>Educational histories of American ethnic and minority groups; comprehensive understanding of American educational history, context for contemporary educational policy discussions.</td>
</tr>
<tr>
<td>07B:126</td>
<td>Twentieth-Century Educational Movements</td>
<td>3 s.h.</td>
<td>Current educational policy debates concerning diversity and equity, historical roots of these policies, historical context for 20th-century equal opportunity movements.</td>
</tr>
<tr>
<td>07B:130</td>
<td>Educational Sociology</td>
<td>2-3 s.h.</td>
<td>Macrosociological perspective of role of education in social systems; impact of formal education on social stratification, social mobility, economic achievement in the United States and selected countries.</td>
</tr>
<tr>
<td>07B:134</td>
<td>Education and the Work of 2 s.h.</td>
<td>2-3 s.h.</td>
<td>Relationship between education and work in individual and organizational behavior; and between educational and economic systems; economics, psychology, sociology, education.</td>
</tr>
<tr>
<td>07B:150</td>
<td>Gender and Education</td>
<td>3 s.h.</td>
<td>Relationships between the construct of gender and the educational process, gender as a basis of social differentiation, gender and school performance, and gender and educational policy.</td>
</tr>
<tr>
<td>07B:153</td>
<td>American Contribution to Educational Philosophy</td>
<td>2 s.h.</td>
<td>American philosophy and its influence on American public education.</td>
</tr>
<tr>
<td>07B:154</td>
<td>Education, Race, and Ethnicity</td>
<td>2-3 s.h.</td>
<td>Role of education in ethnic and racial stratification in the United States and other nations; influence of variations in family structure, stratification patterns, institutional constraints in formation of educational aspirations and achievement levels. GE: cultural diversity.</td>
</tr>
<tr>
<td>07B:155</td>
<td>Critical Thinking</td>
<td>3 s.h.</td>
<td>Formal and informal logic and probabilistic reasoning; focus on construction and critical analysis of arguments; instruction for students planning research in social foundations.</td>
</tr>
<tr>
<td>07B:156</td>
<td>Philosophies of Education</td>
<td>2, 3, 5 s.h.</td>
<td>Principal educational philosophers and philosophies that have influenced Western education; emphasis on how philosophical ideas and conflicts have shaped the educational scene.</td>
</tr>
</tbody>
</table>
07B:260 Contemporary Management Strategies for the K-12 Principal 3 s.h.
Leadership skills and management techniques for daily organization, operation of schools; emphasis on climate, communication, group processes, conflict resolution, curriculum management.

07B:261 The Principalship 3 s.h.
Organization, supervision, administration of schools; curriculum leadership, instructional practice, personnel relations, rule analysis, school community relationships, communication channels.

07B:275 Development Policy and Planning in the Third World 3 s.h.
Cross-cultural and interdisciplinary analysis of problems associated with urbanization and development in developing nations. Same as 034:275, 042:275, 044:275, 102:275, 113:275.

07B:285 School and Community Relationships 3 s.h.
Community analysis, politics and education, power groups and influences, school issues and public responses, public relations strategies.

07B:290 Master's Project arr.
Research for the nonthesis program; topic approved by adviser.

07B:291 Administration of Educational Programs and Personnel 3 s.h.
Personal and program planning examined against statements of educational purpose; interrelationships and internal consistencies of program and staff administration from perspectives of philosophy, psychology, learning theory, sociology, curriculum theory.

07B:293 Individualized Instruction arr.
Readings, special projects, and/or studies that reflect joint instructor/student interest. Prerequisite: consent of instructor.

07B:294 Politics and Economics of Financing Public Education 3 s.h.
Theories, models, research relating to educational governance and finance considered with issues in policy development, analysis, appraisal, planning, their interrelation in American public education.

07B:295 Financial Management of Local School Systems 3 s.h.
School business administration; emphasis on fiscal management, including budgetary procedures, short- and long-range fiscal and facilities planning, management techniques.

07B:297 Administrative Leadership Theory 3 s.h.
Administrative leadership theory drawn from social psychology, sociology, political science, communications, business, and their applications; analysis and formulation of strategies for performing leadership functions in educational administration.

07B:298 Legal Aspects of School Personnel 3 s.h.
Teacher and student: liability, negotiations, rights, privileges, responsibilities of school personnel; principles of law derived from court decisions; constitutional and statutory provisions; for teachers and administrators.

07B:299 Legal Aspects of School Administration 2-3 s.h.
Nonpersonnel concepts in education: organization, property, finance, religion, discrimination, intergovernmental relations; use of constitutional and statutory provisions plus court decisions; primarily for administrators but applicable to teachers.

07B:300 Education in China 2-3 s.h.
Educational development in modern China from social, political, literary perspectives; analysis of post-1949 educational policy shifts.

07B:311 Seminar: Research Topic in Education 2-3 s.h.
Topic submitted by students, faculty. Repeatable.

07B:316 Policy, Design, and Implementation 2-3 s.h.
Review of research, emphasis on policy drafting skills.

07B:318 Legal Issues in Student Services 3 s.h.
Analyses of legal issues and their application to design of policies and procedures for student services in postsecondary institutions. Prerequisite: 07B:218.

07B:333 Practicum arr.
Small-scale research projects; supervised experience in planning, design, management, analysis, reporting of research activities; assignments to current and personal faculty research projects; student assumes major responsibility. Prerequisite: consent of instructor.

07B:350 Seminar: School Business Management Administration 1-3 s.h.
Problems of school business management with emphasis on contemporary issues; preparation for designing, conducting, and analyzing studies in school business management. Prerequisite: 07B:295.

07B:357 Seminar: Current Issues in Special Education Administration arr.
New developments in administration; new content each year. Repeatable. Prerequisites: 07B:236 and consent of instructor.

07B:370 Research Methodology and Quantitative Analysis 3 s.h.
Approaches to research and evaluation; design variety, report style, writing, literature review; role of cognitive and affective measures, questionnaires, interview schedules, observational data; research and evaluation as planning activities. Prerequisite: 07P:143 or equivalent.

07B:373 Qualitative Research Design and Methods 3 s.h.
Theory and practice of qualitative research design and methodology; exploratory field experience in collection and analysis of data; individual and group focus groups, participant observation. Prerequisite: Ph.D. standing.

07B:381 Analysis and Appraisal of Curriculum 2-3 s.h.
Comprehensive investigation of systematic procedures for identifying and evaluating essential features and constituent elements of a given school district's curricular offering; for persons in administration, curriculum, and supervision programs or positions.

07B:383 Supervision and Evaluation 3 s.h.
Constructive leadership in educational organizations; analysis of research related to teacher and supervisor behavior; evaluation procedures and behaviors that enhance leadership opportunities; positive aspects of due process and collective bargaining; for education in administrative or supervisory roles.

07B:385 Teaching and Learning in Higher Education 3 s.h.
Current theoretical and empirical literature on teaching and learning in higher education; focus on development of effective teaching practice. Same as 07P:385.

07B:395 Educational Specialist Research arr.
Individual instruction in the design, research, and writing of a research project of significant quality for upper-level graduate work. Prerequisite: consent of adviser.

07B:401 Field Service Project in Elementary Administration 1-3 s.h.
Supervised experience working with problems in educational administration, including organization, planning, evaluation, decision making; individual project in a school setting. Prerequisite: consent of instructor.

07B:402 Field Service Project in Secondary Administration 1-3 s.h.
Supervised experience working with problems in educational administration, including organization, planning, evaluation, decision making; individual project in a school setting. Prerequisite: consent of instructor.

07B:403 Field Service Project in Special Education Administration 1-3 s.h.
Supervised experience working with problems in educational administration, including organization, planning, evaluation, decision making; individual project in a school setting. Prerequisite: consent of instructor.

07B:404 Field Service Project in Central Administration 1-3 s.h.
Supervised experience working with problems in educational administration, including organization, planning, evaluation, decision making; individual project in a school setting. Prerequisite: consent of instructor.

Supervised research, design, writing of thesis at Ph.D. level provided through individual instruction. Prerequisite: consent of adviser.

07B:494 Master's Project arr.
Supervised experience working with problems in educational administration, including organization, planning, evaluation, decision making; individual project in a school setting. Prerequisite: consent of adviser.

07P:025
Elementary Statistics and Inference may be used to satisfy this requirement.

**Graduate Programs**

**Educational Measurement and Statistics**

**M.A. in Educational Measurement and Statistics**

The M.A. in this field prepares students for positions that require basic knowledge of educational measurement and research methodology. Such positions exist in research centers, test publishing organizations, large school systems, and state departments of education. The program also is appropriate for students who seek to broaden their knowledge of measurement and research methodology for personal development or professional improvement.

**ADMISSION**

Grade-point average requirements for admission to the program are the same as those established by the Graduate College. Applicants who have a composite score lower than 1000 on the Graduate Record Examination (GRE) General Test typically are not admitted. Applicants who show offsetting evidence of superior ability may be granted conditional admission. Applicants should have at least one course in college mathematics. Experience as a teacher or researcher is highly desirable.

Students who want to transfer to this program from another University of Iowa program must submit a statement that explains why they want to change programs and why they think the educational measurement and statistics program will help them accomplish their educational and vocational goals.

For information about admission dates, contact the educational measurement and statistics program coordinator.

**REQUIREMENTS**

The degree may be earned with thesis (minimum of 28 s.h. of course work plus 2.4 s.h. of thesis credit) or without thesis (32 s.h. minimum). All students must complete a core of courses totaling approximately 26 s.h. Included in this core are a graduate-level survey course in educational psychology, elementary and intermediate courses in statistical methods, a course in educational research methodology, and courses in the development and use of evaluation instruments. If a student already has completed equivalent courses at another institution, more advanced courses may be added to the core.

The six hours of final comprehensive examinations typically include three-hour examinations in educational measurement and in applied statistics. With the approval of the M.A. committee, the student may take two-hour examinations in these fields plus a two-hour examination in educational psychology or a substitute area. Three-hour examinations assume a minimum of three courses in the area; two-hour examinations assume a minimum of two courses in the area.

**Ph.D. in Educational Measurement and Statistics**

This doctoral program prepares students for senior professional positions in the fields of educational measurement, evaluation, and statistical methods. Such positions generally are found in colleges and universities, state and federal agencies, large public and private school systems, test publishing agencies, and research centers.

**ADMISSION**

Applicants for admission to the program must hold an M.A. from an accredited institution. The grade-point average requirement is the same as that for the Graduate College. Applicants who have a composite score lower than 1000 on the Graduate Record Examination (GRE) General Test typically are not admitted. Applicants who show offsetting evidence of superior ability may be granted conditional admission.

Students who expect to concentrate in statistics should have training in college mathematics through differential and integral calculus. The absence of such training is a deficiency that must be made up during the first year of residence. At least one year of professional experience in teaching, research, or a related field is highly desirable.

Students who want to transfer to this program from another University of Iowa program must submit a statement explaining why they want to change programs and why they think the educational measurement and statistics program will help them accomplish their educational and vocational goals.

For information about admission dates, contact the educational measurement and statistics program coordinator.

**REQUIREMENTS**

In addition to the substantive courses in educational measurement and statistics offered by the division, all students must complete the following related courses.

- 07C:254 Appraisal in Counseling 3 s.h.
- 07P:165 Introduction to Program Evaluation 3 s.h.
- 07P:200 Educational Psychology 3 s.h.
- 07P:220 Quantitative Educational Research Methodologies 3 s.h.

The student's adviser specifies additional course work in areas appropriate to the student's interests and vocational objectives. These courses typically include additional work in educational psychology and courses offered by other College of Education divisions and University departments.

Students who concentrate in the area of statistics, with the intention of teaching on the college level, are required to take courses in the mathematical theory of statistics. Those who concentrate in the area of educational measurement and evaluation are advised to take courses in curriculum, counseling, and higher education.

All students must develop familiarity with computer programming techniques and computer software designed for statistical analysis.

Candidates who enter the program without completing an M.A. thesis must complete a substitute project approved by three members of the division faculty. The project must be completed before the Ph.D. comprehensive examinations may be written. A minimum of 90 s.h. is required for the degree, including 12 s.h. or more of thesis credit.

Following completion of the major portion of their course work, candidates must write comprehensive examinations. Typically, these consist of three 3-hour written examinations over the fields of applied statistics, educational measurement, and program evaluation, or approved substitute areas such as educational psychology or mathematical statistics. A substitute area generally is one in which the candidate has at least 9 s.h. of course work. In lieu of one written examination, the student's committee may assign a project involving analytical and evaluative skills, or research creativity. The written examinations are followed by an oral examination in which the committee members may seek further evidence of the candidate's command of the three fields. A single decision is rendered on all aspects of the comprehensive examinations.

**Counseling Psychology**

**Ph.D. in Counseling Psychology**

The doctoral program in counseling psychology was granted full accreditation by the American Psychological Association in 1983. Full accreditation was renewed in 2000.

The program's goal is to prepare doctoral-level counseling psychologists who will promote psychology as a science and contribute to the advancement of the profession. No master's degree is offered in counseling psychology. The faculty endorses a scientist/practitioner model of training and expects students to become competent researchers and proficient practitioners. Graduates find positions in a variety of settings, including higher education, counseling centers, clinics, private practice settings, and hospitals.

**ADMISSION**

Applications are complete when the following items have been received:

- the Graduate College application form;
- official transcripts of all previous undergraduate and graduate work;
- an official report of Graduate Record Examination (GRE) General Test scores (the GRE Advanced Test in Psychology is encouraged but not required);
- a personal statement outlining career goals and reasons for seeking advanced training as a counseling psychologist; and
- three letters of recommendation from persons in a position to assess the applicant's potential for completing the doctoral program.
Preference is given to applicants who meet the following criteria: undergraduate g.p.a. above 3.00; graduate g.p.a. above 3.50; GRE General Test score (verbal plus quantitative) above 1200; undergraduate major, minor, or substantial course work in psychology; and previous research and counseling experience. The faculty encourages applications from minorities, women, and persons from a wide range of backgrounds and academic preparation. The program typically accepts between five and eight students each year.

The deadline for completed applications is January 1. Admissions decisions usually are made by March 15. Some applicants may be invited to campus for interviews before final selection. All students must begin the program in the fall semester after they are admitted, and all students must study full-time.

REQUIREMENTS

Basic Psychology

All students are required to have a thorough grounding in the basic discipline of psychology. This may be achieved through a minimum of 3 s.h. of credit in each of the following four areas: biological bases of behavior, cognitive-affective bases of behavior, social bases of behavior, and history and systems. An additional 6 s.h. are required in the area of individual differences.

Statistics and Research Design

Both of these:

- 07P:243 Intermediate Statistical Methods 3 s.h.
- 07P:257 Educational Measurement and Evaluation Using Standardized Instruments 3 s.h.

One of these:

- 07P:244 Correlation and Regression 4 s.h.
- 07P:246 Design of Experiments 4 s.h.

Counseling Psychology Core

- 07P:223/225 Introduction to Counseling Psychology Practice/Research I-II 6 s.h.
- 07P:235 Multicultural Counseling 3 s.h.
- 07P:305 Psychotherapy I: Dynamic and Phenomenological Approaches 3 s.h.
- 07P:306 Psychotherapy III: Career Interventions 3 s.h.
- 07P:310 Psychological Assessment 3 s.h.
- 07P:312 Psychological Diagnosis 3 s.h.
- 07P:356 Processes and Outcomes in Counseling and Psychotherapy 3 s.h.
- 07P:365 Psychotherapy II: Cognitive and Behavioral Approaches 3 s.h.
- 07P:434 Practicum in Counseling Psychology 3 s.h.

Other Requirements

Elective courses are determined in collaboration with the major adviser.

The dissertation research study is planned in collaboration with the doctoral student’s major adviser. Dissertation credit can range from 12 to 15 s.h.

Students spend a calendar year at an internship setting approved by the counseling psychology faculty. The faculty determines student readiness to apply for the internship based on completion of all or almost all required course work, satisfactory progress toward completion of the portfolio requirement, and successful completion of practicum requirements. Internships usually require geographic relocation.

Comprehensive examinations are written in three areas: counseling psychology research/theory, counseling psychology practice methods/applications, and counseling psychology ethics/issues. For students who entered the program in 2002 and later, the comprehensive examination is structured as a component of the portfolio review. For more information, contact the program coordinator.

Students must show appropriate levels of emotional balance and interpersonal skills and act within the American Psychological Association’s Ethical Principles of Psychologists. For more information, contact the program director.

Educational Psychology

M.A. in Educational Psychology

The M.A. program is designed to help students master the core content and methods of educational psychology. Graduates generally are qualified to apply educational psychology research findings to the solution of problems in a broad range of educational contexts. Students may elect to specialize in any of several areas, including classroom learning and instruction, motivation, development, measurement of human abilities, and the role of technology in instruction.

Full-time M.A. students are expected to complete the degree in two years or less. Each student’s progress is evaluated by the faculty after one academic year (two semesters) of study and during subsequent years. Students who do not make satisfactory progress may be required to withdraw from the program.

ADMISSION

The grade-point average requirement for admission is the same as that established by the Graduate College, but most successful applicants exceed this standard. Candidates must have taken the Graduate Record Examination (GRE) General Test; successful applicants’ total score for the verbal and mathematics tests usually exceed 1000. Applicants who majored in psychology as undergraduates are encouraged to take the Graduate Record Examination psychology test and submit their score. Applicants from other countries whose native language is not English are required to submit acceptable scores on the TOEFL exam. Teaching experience is desirable but not required.

The application deadline for fall semester entry is February 1. The application deadline for spring semester entry is October 1. Admission decisions are announced approximately six weeks after the application deadline. Late applications are considered as space is available.

Applicants who accept admission or financial aid for the following fall and do not relinquish either one on or before April 15 may not solicit or accept another offer. Offers made by the program after April 15 include the proviso that the offer is void if the applicant accepts and continues to hold on that date a previous offer made by another program listed in Graduate Study in Psychology. This policy is consistent with standards set by the Board of Educational Affairs of the American Psychological Association.

REQUIREMENTS

A minimum of 30 s.h. of course work is required. Students develop their programs in consultation with their faculty adviser. The M.A. degree does not require a thesis. A typical program for a part-time M.A. student includes 3 or 6 s.h. each semester. Part-time students should complete the degree in two or three years. A typical program for a full-time M.A. student includes at least 9 s.h. in each of the fall and spring semesters, with the option of summer course work. Full-time students should be able to complete the program in four semesters. Students may apply to have equivalent course work from another institution or department substituted for required or recommended courses.

Required courses:

- 07P:202 Using Research in Educational Psychology 3 s.h.
- 07P:221 Educational Psychology for Effective Teaching 3 s.h.
- 07P:299 M.A. Project: The Portfolio 3 s.h.

Recommended courses (minimum 15 s.h.):

- 07P:106 Child Development 3 s.h.
- 07P:212 Advanced Life-Span Development 3 s.h.
- 07P:111 Motivation 3 s.h.
- 07P:201 Adapting Instruction to Individual Differences 3 s.h.
- 07P:203 Learning, Technology, and Effective Teaching 3 s.h.
- 07P:205 Design of Instruction 3 s.h.
- 07P:208 Designing Educational Multimedia 3 s.h.
- 07P:215 Web-Based Learning 3 s.h.
- 07P:281 Cognition and Learning in the Classroom 3 s.h.
- Electives 6 s.h.

Psychological and Quantitative Foundations

Selection of courses depends on the student’s area of specialization. Students may substitute equivalent courses with faculty approval.
PORTFOLIO PROJECT
Rather than completing a thesis or comprehensive exam, M.A. students create a portfolio project. The goal of the portfolio is to show how a theoretical understanding and a practical application of educational psychology can help the student become a better teacher. In the opening course of the M.A. program (07P:222), students are introduced to all aspects of educational psychology and begin to create a portfolio of work to showcase how they can use educational psychology to become more effective teachers. With each course in the program, students continue to work on individual entries for their portfolio. In the final course of the M.A. program (07P:299), students revise and present their comprehensive portfolio.

Ph.D. in Educational Psychology
The doctoral program is designed to help students master the core content and methods of educational psychology and acquire the depth of knowledge and methodological sophistication necessary for original research that contributes to the discipline.

Students in the Ph.D. program are reviewed annually by the faculty. Students must complete a second-year project by the end of their second academic year in the program. Those who do not fulfill this requirement or who otherwise fail to make satisfactory progress may be required to withdraw from the program.

Students who enter the Ph.D. program with a Master of Arts without thesis are required to complete the independent research course sequence and its assigned research project in either their first or second year, as agreed upon admission. Students who have completed an empirical M.A. thesis that is acceptable to the faculty may omit the independent research sequence and second-year project.

ADMISSION
The minimum graduate grade-point average and Graduate Record Examination (GRE) requirements for admission are the same as those established by the Graduate College, but most successful applicants have records that exceed these standards. Candidates must have taken the Graduate Record Examination General Test. Students who have completed an empirical M.A. thesis that is acceptable to the faculty may omit the independent research sequence and second-year project.

Applicants who accept admission or financial aid and do not relinquish either one on or before April 15 may not solicit or accept another offer. Offers made by the program after April 15 include the provision that the offer is void if the applicant accepts a previous offer made by another program listed in the Graduate Study in Psychology. This policy is consistent with standards set by the Board of Educational Affairs of the American Psychological Association.

REQUIREMENTS
The student and his or her adviser plan the program jointly. The degree requires a minimum of 72 s.h. beyond the bachelor's degree. Some of the required courses listed below encompass substantive areas within educational psychology. Other required courses include a preseminar that orients students to educational psychology as a profession and to key readings in the field, a research practicum in which students assist with and eventually design and carry out original research, and several courses in measurement and statistics.

Some requirements may be waived for students who begin the Ph.D. program with a master's degree or specific course work from another program. Course requirements are as follows.

- All of these (or equivalents):
  - 07P:201 Adapting Instruction to Individual Differences 3 s.h.
  - 07P:220 Quantitative Educational Research Methodologies 3 s.h.
  - 07P:221 Educational Psychology for Effective Teaching 3 s.h.
  - 07P:230 Research in Educational Psychology (minimum requirement, may be repeated for additional credit, enrollment required in first and second year of program) 1-3 s.h.
  - 07P:257 Educational Measurement and Evaluation Using Standardized Instruments 3 s.h.
  - 07P:281 Cognition and Learning in the Classroom 3 s.h.
  - 07P:283 Cognitive Development 3 s.h.
  - 07P:335 Advanced Motivation: Laboratory and Classroom Investigation 3 s.h.
  - 07P:493 Ph.D. Thesis in Psychological and Quantitative Foundations (minimum requirement) 10 s.h.

Recommended—at least two of these (or equivalents):
- 07P:212 Advanced Life-Span Development 3 s.h.
- 07P:234 Advanced Multimedia Design 3 s.h.
- 07P:265 Program Evaluation 3 s.h.
- 07P:269 Advanced Personality 3 s.h.
- 07P:270 Cognitive Psychology of Reading 3 s.h.
- 07P:285 Instructional Computer Simulations 3 s.h.
- 07W:209 Development of CAl 3 s.h.
- 07W:220 Advanced Instructional Design 3 s.h.
- Electives 15 s.h.

At least two of these (or equivalents):
- 07P:243 Intermediate Statistical Methods 3 s.h.
- 07P:244 Correlation and Regression 4 s.h.
- 07P:245 Applied Multivariate Analysis 3 s.h.
- 07P:246 Design of Experiments 4 s.h.

Minor Area
Students must complete a minimum of 12 s.h. that constitute a coherent program of course work outside the program and beyond the courses listed above. The minor area may be in a foundation discipline, such as psychology, or in another area of education, such as mathematics education, educational philosophy, or program evaluation. Course work must be at the 200-level or above and may span departments and colleges so long as it reflects a plan approved by the student’s adviser.

SECOND-YEAR RESEARCH PROJECT
As part of their second year of participation in 07P:230 Research in Educational Psychology, Ph.D. students are required to complete a research project of modest scope under the direction of a faculty member and must present the work in both oral and written form to the program’s faculty and students. First-year Ph.D. students may assist second-year students with data collection and other research activities, and students may design and conduct projects in collaboration with other students. The written report must be completed by the end of the student’s second academic year in the program. Students may re-enroll in this course beyond their second year.

COMPREHENSIVE EXAMINATION
The Ph.D. comprehensive examination in educational psychology emphasizes competence and depth in one or more narrowly defined areas of research and theory. Students choose among three options in consultation with their adviser and with the approval of the examining committee, which is made up of five faculty members and is not necessarily the same as the dissertation committee. The options are a review article, an extended research activity, or a traditional comprehensive examination.

School Psychology
Ed.S. in School Psychology
The Ed.S. option provides course work and supervised field experience in the areas of education and psychology, enabling graduates to qualify for licensure as school psychologists (State of Iowa Endorsement 40).

ADMISSION
The University of Iowa is working in conjunction with the University of Northern Iowa to offer an alternative Ed.S. degree in school psychology. This program allows students to take courses via distance education and at either university. Students are admitted to the program in fall or spring. Admission to the Ed.S. program is separate from admission to the Ph.D. program.

REQUIREMENTS
The degree requires a minimum of 60 s.h. (the total depends on students’ previous course work). It includes courses in psychological
foundations, psychoeducational foundations, school psychology, and research methods. Also required are a written comprehensive examination and a research paper prepared in conjunction with 07P:342 Research Project in School Psychology (1-6 s.h.).

Ph.D. in School Psychology

The Ph.D. program in school psychology was granted full accreditation by the American Psychological Association in 1992; full accreditation was renewed in 2000. The program’s goal is to prepare doctoral-level school psychologists who will promote psychology as a science and contribute to the advancement of the profession. The faculty endorses a scientist/practitioner model of training and expects students to become competent researchers and proficient practitioners.

ADMISSION

Preference is given to applicants with an undergraduate major in psychology or education, a p.p.a. above 3.00, and verbal and quantitative scores above 500 on the Graduate Record Examination (GRE) General Test. The faculty also encourages applications from individuals with M.A. or Ed.S. degrees and experience as psychologists or other human service providers.

Applications must include three letters of recommendation, a personal statement of interest and goals, and a writing sample. Complete application materials, including transcripts and test scores, must be received by January 1 to be considered for fall semester admission. Admission decisions usually are made by March 15. The program admits from four to six students each year.

REQUIREMENTS

The program requires a minimum of 103 s.h. All students are required to have a thorough grounding in the basic discipline of psychology, which may be achieved through earning a minimum of 3 s.h. of credit in each of the following areas: biological bases of behavior, cognitive/affective bases of behavior, social bases of behavior, individual differences, and history and systems.

The plan of study is developed by students and their academic adviser. Students are required to write comprehensive examinations, carry out a research project equivalent in scope to an M.A. thesis, participate in an internship, and complete a doctoral dissertation through enrollment for a minimum of 10 s.h. in 07P:493 Ph.D. Thesis in Psychological and Quantitative Foundations.

School Psychology Core

07P:224 Practicum/Professional Seminar in School Psychology 3 s.h.
07P:237 Practicum in School Psychological Service (minimum 150 hours) 3 s.h.
07P:238 Assessment of Learning Difficulties (taken with 07P:237) 3 s.h.
07P:251 Individual Intelligence Testing (taken with 07P:237) 3 s.h.
07P:263 Consultation Theory and Practice (taken with 07P:337) 3 s.h.
07P:313 Psychopathology in Childhood 3 s.h.
07P:315 Psychodiagnosics: Children and Adolescents 3 s.h.
07P:337 Advanced Practicum in School Psychology (minimum 750 hours) 12 s.h.
07P:352 Seminar: Behavioral Assessment and Evaluation 3 s.h.
07P:367 Organizations as Social Systems 3 s.h.
07P:380 Practicum in College Teaching (optional) 1-3 s.h.
07P:390 Supervision of School Psychology Practicum/Internship 1 s.h.
07P:437 Internship in School Psychology (one year or two years, half-time, total of 1800 hours) 3 s.h.

Program course work in evaluation is required.

Students must enroll in practicums to reach a specified level of client contact, supervision, and additional experience hours. Placements must have prior approval of the school psychology faculty. Students must successfully complete one semester of 07P:237 Practicum in School Psychological Service before enrolling in 07P:337 Advanced Practicum in School Psychology.

Students must adhere to the most recent ethical principles and standards of the American Psychological Association.

Courses

**Psychology, Measurement, Statistics**

*Students may receive credit for only two of these three courses: 22S:002, 22S:008, and 22S:025 (same as 07P:025). Credit for 22S:002 is given only if the course is taken before 22S:008 or 22S:025 (same as 07P:025).*

07P:025 Elementary Statistics and Inference 3 s.h.

Graphical techniques for presenting data; descriptive statistics; sampling distribution models; logic of statistical inference; interval estimation procedures; tests of significance; correlation and prediction. GE: quantitative or formal reasoning. Prerequisite: 22M:001 or equivalent. Same as 22S:025.

07P:075 Educational Psychology and Measurement 3 s.h.

Principles and classroom applications of cognitive development, social development, learning, cognition, individual differences, motivation, testing, assessment.

07P:101 Methods of Student Assessment arr.

Development, use, evaluation of student assessment methods: written tests, performance and product assessments, observation, oral questioning, checklist, grading and reporting, administration and use of standardized tests of achievement and other cognitive abilities.

07P:106 Child Development 3 s.h.

Theories and research findings about typical course of child development, differences in development. Prerequisite: junior standing or consent of instructor.

07P:111 Motivation 3 s.h.

Principles of motivation and their application to applied settings, especially to the classroom as teachers try to motivate students.

07P:120 Psychology of Giftedness 3 s.h.

Theories of learning, child development, motivation; issues unique to gifted education. Same as 07C:120.

07P:121 Assessment of Giftedness and Academic Talent 3 s.h.

Interpretation of standardized tests and other measurement instruments used to identify academic talent and program effectively for grades K-12; ability, aptitude, achievement tests; current issues in the use of various instruments. Same as 07C:121.

07P:122 Math/Science Program for High Ability Students 1 s.h.

Unique challenges and opportunities faced by teachers of high ability students; theory and practice, development of program outlines for implementation. Same as 07S:122.

07P:125 Counseling and Psychological Needs of the Gifted 1 s.h.

Psychological aspects of giftedness, counseling techniques appropriate for gifted children, adolescents; socio-emotional concerns, career development, underachievement. Same as 07C:125.

07P:128 Cognitive and Affective Needs of Undersachieving Gifted 1 s.h.

Diagnostic strategy for identifying types of underachievement, teaching and counseling interventions appropriate for each. Same as 07C:128.

07P:127 Research and Theory in Talent/Giftedness 1 s.h.

Symposium. Same as 07C:127.

07P:128 Neurocognitive Implications for Gifted 1 s.h.

Neurobiology of behavior and neurodevelopmental disease; the psychology of learning and memory; its application to gifted education.

07P:129 Creativity: Issues and Applications in Gifted Education 1 s.h.

Same as 07C:129.

07P:133 The Adolescent and Young Adult 3 s.h.

Psychological, social aspects of adolescence and young adulthood; emphasis on theory, research, practical applications.

07P:134 Parent-Teacher Communication 1-3 s.h.

Realization of working with parents; interpersonal skills; options for parent support services. Same as 07E:134, 07U:134.

07P:136 Home/School/Community Partnerships 3 s.h.


07P:143 Introduction to Statistical Methods 3 s.h.

Analysis, interpretation of research data; descriptive statistics; introduction to probability; sampling theory; statistical inference (binomial, normal distribution, t-distribution models); linear correlation, regression. Same as 22S:102.

07P:148 Bayesian Statistics 3 s.h.

Bayesian statistical analysis with focus on applications; comparison of Bayesian and frequentist methods; Bayesian model specification, choice of priors, computational methods; hand-on Bayesian data analysis using appropriate software; interpretation, presentation of analysis results. Prerequisite: 22S:120 or equivalent. Same as 22S:138.

07P:150 Introduction to Educational Measurement 3-4 s.h.

Ten development procedures, reliability, validity, item writing, evaluation of item and test characteristics, classroom assessment methods; interpretation of scores from standardized achievement and aptitude tests; no background in statistics assumed.

07P:155 Survey Research and Design 3 s.h.

Same as 07E:170.

07P:165 Introduction to Program Evaluation 3 s.h.

Models, design, data collection techniques that guide program evaluation; current issues, controversies. Same as 07E:165.

07P:193 Special Readings and Projects arr.

Supervised individual study. Prerequisites: senior standing and consent of instructor.

07P:199 Topical Workshop in Psychological and Quantitative Foundations arr.

School, educational, and counseling psychology and allied disciplines; for professionals and graduate students in education, mental health, social services, related fields. Repeatable.

07P:200 Educational Psychology 3 s.h.

Psychology of the teaching/learning process; developmental concepts, social processes, language and thought; individual differences in abilities and achievements; theory and research on reading, writing, mathematics, thinking, studying.

07P:201 Adapting Instruction to Individual Differences 3 s.h.

Psychological foundations of trait and process theories of human intelligence; special abilities; matching ability profiles and educational interventions; ability development through education.

07P:202 Understanding Educational Research 3 s.h.

Issues that underlie the validity of educational research; varied approaches to research.

07P:203 Learning, Technology, and Effective Teaching 3 s.h.

Principles and classroom application of technology to advance student learning.
07P:205 Design of Instruction
3 s.h.
Application of models, theories, and strategies in design of instruction for use in varied settings; major components of instructional system development.

07P:206 Advanced Child Development
3 s.h.
Theories of social and cognitive development; in-depth study of several current controversies in the field. Prerequisite: 07P:106 or equivalent or consent of instructor.

07P:207 Evaluation of Children with Learning Disabilities
Same as 070:245.

07P:208 Designing Educational Multimedia
3 s.h.
Theory, design, and evaluation of instructional software.

07P:210 Social Psychology of Disability
3 s.h.
Social psychology of disability; issues in mental/physical disability from individual, societal perspective; advanced research seminar with emphasis on clashing research, theoretical strategies in psychology of disability. Prerequisites: doctoral standing and consent of instructor. Same as 070:250.

07P:212 Advanced Life-Span Development
3 s.h.
Selected theories and research in development across the life span, especially from adolescence through late adulthood, focus on relevance for instruction and counseling.

07P:215 Web-Based Learning
3 s.h.
Theory and practice of designing web sites to support or deliver instruction; student team project to create an instructional web site that integrates the theories and principles from class readings. Prerequisites: 07P:208 and consent of instructor.

07P:220 Quantitative Educational Research Methodologies
3 s.h.
Procedures for planning, conducting, reporting research; evaluation of current methods in educational research; quantitative methods. Prerequisite: 07P:143.

07P:221 Educational Psychology for Effective Teaching
3 s.h.
Introduction to the discipline and its specialization; focus on new ways to develop teaching expertise.

07P:223 Introduction to Counseling Psychology Practice/Research I
3 s.h.
Historical, theoretical, professional, scientific traditions associated with counseling psychology; professional ethical principles. Prerequisite: consent of instructor.

07P:224 Preparatory/Professional Seminar in School Psychology
Preparation for practice; historical look at school psychology; current rules; overview of issues, ethics. Prerequisite: consent of instructor.

07P:225 Introduction to Counseling Psychology Practice/Research II
3 s.h.
Learning and performance of basic helping skills; integration of these skills with counseling theories, broader counseling strategies; laboratory-based. Prerequisite: consent of instructor.

07P:230 Research in Educational Psychology
1-3 s.h.
Experience in conducing or assisting in educational psychology empirical research project; activities from conceptualization through data generation; preparation and presentation of research report. Repeatable. Prerequisite: graduate standing in educational psychology or consent of instructor.

07P:234 Advanced Multimedia Design
3 s.h.
Theory and development of multimedia programs that use video, CD-ROM, computer animation, digital audio; emphasis on team-development of software. Prerequisites: 07P:209 and consent of instructor.

07P:242 Selected Applications of Statistics
3 s.h.
Foundation for more advanced applied courses; logic of statistical inference, chi-square, and other tests of statistical hypotheses; small sample error theory; interval estimates, introduction to analysis of variance, selected nonparametric methods. Prerequisite: 07P:143 or equivalent. Same as 225:148.

07P:244 Correlation and Regression
4 s.h.
Correlation techniques; selected bivariate procedures, multiple, partial, curvilinear correlation; multiple linear regression; sampling theory applied to regression analysis and correlation coefficients; simple causal models. Prerequisite: 07P:243 or equivalent. Same as 225:157.

07P:245 Applied Multivariate Analysis
3 s.h.
Multivariate analyses of variance, discriminant analysis, factor analysis; use of multivariate statistical computer packages.

07P:250 Computer Packages for Statistical Analysis
2-3 s.h.
Computer programs and systems designed to execute statistical analysis: SAS, SPSS, BMDP, and others; lectures on regression techniques, analysis of variance, multivariate techniques; practice in entering data, calling up desired programs, interpreting computer output. Prerequisites: 07P:243 or equivalent, and elementary knowledge of computer programming.

07P:252 Introduction to Multivariate Statistical Models
3 s.h.
Selected topics in multivariate analysis, including multivariate significance tests, principal components and factor analysis, discriminant analysis, canonical correlation, multivariate analysis of variance (MANOVA). Prerequisite: 07P:244 or consent of instructor.

07P:255 Construction and Use of Evaluation Instruments
Design and construction of measures used in educational evaluation: achievement tests, attitude scales, performance measures, questionnaires; emphasis on methods of instrument development and evaluation of instrument characteristics. Prerequisites: 07P:143 and 07P:257, or equivalents.

07P:257 Educational Measurement and Evaluation Using Standardized Instruments
3 s.h.
Evaluation and use of standardized tests and inventories in individual and group assessment; analyzing reliability, validity, normative data; interpreting measures of achievement, intelligence, aptitude, interests, attitudes, personality; current issues; for counselors, administrators, teachers, measurement specialists. Corequisite: 07P:143 or equivalents.

07P:258 Theory and Technique in Educational Measurement
Mathematical foundations, principal results, and applications of classical test theory; perspectives on conditional error variance; item response model and applications; introduction to generalizability theory, advanced measurement topics.

07P:259 Scaling Methods
3 s.h.
Unidimensional and multidimensional scaling techniques; introduction to available computer programs for scaling applications in educational and psychological research. Prerequisite: 07P:252 or equivalent. Recommended: 07P:249.

07P:262 Item Response Theory
3 s.h.
Theoretical foundations and practical applications; mathematical models and estimation techniques; emphasis on current applications and issues in testing, computer estimation programs. Prerequisites: 07P:243 and 07P:257.

07P:267 Research Program Evaluation
3 s.h.
Theoretical issues and considerations in evaluation of educational and social programs; evaluation design, methodology, metaevaluation, evaluation utilization. Prerequisites: 07P:143, 07P:150, and 07P:165, or consent of instructor.

07P:269 Advanced Personality
3 s.h.
Current research and research methods in the psychology of personality; emphasis on individual differences in personality that have implications for teaching, learning, well-being.

07P:270 Cognitive Psychology of Reading
3-4 s.h.
Theories and models of the reading process, of its development, and of individual and cross-language differences; review of selected research studies from recent, current literature. Prerequisite: consent of instructor.

07P:275 Constructivism and Design of Instruction
3 s.h.
Theoretical foundations of constructivism; application/constructor principles to the design of instruction.

07P:281 Cognition and Learning in the Classroom
3 s.h.
Theories of learning and cognition as they relate to education; application of cognitive research to subject matter learning (mathematics, science, reading, writing). Prerequisite: 07P:200 or equivalent.

07P:283 Cognitive Development
3 s.h.
Information-processing, dynamic systems, social-contextual, and neo-Piagetian theories of cognitive development and the educational implications; individual differences in cognitive development.

07P:285 Instructional Computer Simulations
3 s.h.
Theory and development of computer-based simulations, games, research on design characteristics and effectiveness; design, development, evaluation of simulation software by student teams. Prerequisites: 07P:234 and consent of instructor.

07P:292 Supervised Research in Educational Psychology
1-3 s.h.
identification of research problems, development of research designs and materials, conducting of research studies; faculty-guided activity or seminar. Prerequisite: consent of instructor.

07P:293 Individual Instruction in Psychological and Quantitative Foundations
arr.
Theoretical and research literature on interventions with families, with emphasis on clarifying research, theoretical strategies in evaluation of educational programs, including 07P:265; or consent of instructor.

07P:298 Introduction to Multivariate Statistical Methods
3 s.h.
Prerequisites: 07P:150, and 07P:165; or consent of instructor.

07P:299 M.A. Project: The Portfolio
Individual project; reflection, revision, and presentation of portfolio entries to show the student’s translation of educational psychology content into effective teaching.

07P:301 Human Abilities
3 s.h.
Psychology of abilities required by or developed through schooling; theories of cognitive abilities, age, sex, ethnic differences; cultivation of intelligence through schooling. Prerequisite: 07P:143.

07P:305 Psychotherapy I: Dynamic and Phenomenological Approaches
3 s.h.
Major psychodynamic and existential phenomenological theories of personality; emphasis on implications for psychotherapy.

07P:306 Psychotherapy III: Career Interventions
Foundations of career interventions; emphasis on major assessment instruments (vocational interests, values, abilities/skills, personality) and career counseling processes, skills, techniques.

07P:310 Psychological Assessment
3 s.h.
Major objective and projective instruments in normal and abnormal personality measurement; assessment of intellectual functioning, development, academic achievement; emphasis on integrating demographic, interview, and assessment data into client conceptualization. Prerequisite: consent of instructor.

07P:312 Psychological Diagnosis
DSM IV categories, related diagnostic issues. Prerequisite: consent of instructor.

07P:313 Psychopathology in Childhood
3 s.h.
Current theories regarding the development of psychopathology in children and adolescents; current approaches to treatment for disorders in children and adolescents.

07P:320 History and Systems of Psychology
3 s.h.
Philosophical underpinnings of psychology, early systems in psychology, developments in the 20th century.

07P:331 Seminar: Educational Psychology I: Current Topics
arr.
Intensive investigation of a specific research topic. Prerequisite: consent of instructor.

07P:335 Advanced Motivation: Laboratory and Classroom Investigation
3 s.h.
Contemporary theories of motivation, with focus on theory and application, in-depth study concentrating on one approach to motivation, student project.

07P:348 Family Interventions
3 s.h.
Theoretical and research literature on interventions with families of school-age children; opportunities to engage in intervention activities.

07P:350 Seminar in Evaluation
3-3 s.h.
In-depth examination of selected topics. Prerequisites: two courses in evaluation, including 07P:265, or consent of instructor.
07P:354 Seminar: Experimental Approaches in Counseling Research arr.
Application of experimental methodology to study of counseling and vocational phenomena. Repeatable. Prerequisite: consent of instructor.

Critical examination of current issues and problems of the professional worker in the field of educational measurement and evaluation as reflected in research literature, other professional communication media.

07P:356 Processes and Outcomes in Counseling and Psychotherapy 3 s.h.
Advanced knowledge of the state of process and outcome research on psychotherapeutic procedures. Prerequisites: Ph.D. candidacy in appropriate field and consent of instructor.

07P:358 Equating and Scaling of Educational Tests 3 s.h.
Designs and methods, including linear, equipercentile, and item response theory methods; emphasis on concepts, applications to testing programs, research. Prerequisites: 07P:243 and 07P:257, or consent of instructor.

07P:365 Psychotherapy II: Cognitive and Behavioral Approaches 3 s.h.
Major cognitive and behavioral theories of personality and psychotherapy; emphasis on implications for clinical practice.

07P:375 Topics in Educational Measurement and Statistics 1-3 s.h.
Repeatable.

07P:380 Practicum in College Teaching arr.
Supervised college teaching experience in courses related to major academic areas, in collaboration with faculty course instructors.

07P:385 Teaching and Learning in Higher Education 3 s.h.
Current theoretical and empirical literature on teaching and learning in higher education; emphasis on development of effective teaching practice. Same as 07E:385.

07P:393 M.A. Thesis in Psychological and Quantitative Foundations arr.
Prerequisite: consent of instructor.

07P:394 Supervised Research in Counseling Psychology 1-3 s.h.

07P:434 Practicum in Counseling Psychology 3 s.h.
Supervised practice in counseling services. Prerequisites: 07P:223 and 07P:225, or equivalents; and consent of instructor.

07P:450 Practicum in Program Evaluation arr.
Supervised experience in designing and implementing components of program evaluations. Prerequisites: two courses in program evaluation, including 07P:265, and consent of instructor.

07P:453 Advanced Practicum in Counseling Psychology 1-3 s.h.
Supervised work in counseling services. Repeatable. Prerequisites: 07P:434 or equivalent, and consent of instructor.

07P:455 Generalizability Theory 3 s.h.
Analysis of variance methods applied to estimation of components of various types of measurement error variance; basic concepts, mathematical foundations, models, assumptions, designs, applications, comparisons with other measurement theories. Prerequisite: 07P:246 or 07P:258 or consent of instructor.

Prerequisite: consent of instructor.

School Psychology

07P:235 Multicultural Counseling 3 s.h.
Issues, theoretical, practical aspects of the cultural adaptation process; implications for interventions in diverse populations. Prerequisite: introductory course in counseling skills.

Supervised practicum in psychological and educational evaluation in school settings. Repeatable. Prerequisites: 07P:238, 07P:251, and consent of instructor.

07P:238 Assessment of Learning Difficulties 1-3 s.h.
Same as 07U:238.

07P:251 Individual Intelligence Testing 3 s.h.
Administration of individual intelligence tests, interpretation of test results; issues in psychological testing; factors that influence performance. Prerequisites: 07F:143 or 07F:150, and consent of instructor.

07P:263 Consultation Theory and Practice 2-3 s.h.
Same as 07C:263, 07W:263.

07P:311 Practicum in Counseling and Psychological Services for Gifted Students 1-6 s.h.
Educational, personal, family issues for graduate students who have had course work in counseling education, counseling psychology, school psychology, educational psychology, related fields. Prerequisites: 07C:178 or equivalent, and consent of instructor. Same as 07C:311.

07P:315 Psychodiagnostic: Children and Adolescents 3 s.h.
Link between personality theory, child and adolescent assessment; interpretation, integration of assessment information; record reviews, interviews, objective tests, projective techniques. Prerequisites: 07P:238 and 07P:251, or equivalents.

07P:316 Psychopathology in Childhood 3 s.h.
Descriptions and theories regarding the development of psychopathology in children and adolescents; current theoretically and empirically related interventions for specific disorders. Prerequisite: consent of instructor.

07P:337 Advanced Practicum in School Psychology arr.
Supervised experience in psychological interventions, consultation, counseling in school and clinic settings. Prerequisites: 07P:237, 07P:238, 07P:251, and consent of instructor.

Experience in research facilities on campus; assistance for students writing research questions, planning a research study, writing a research article. Prerequisite: consent of instructor.

07P:345 Seminar in Psychoeducational Interventions I 3 s.h.
Interventions used by school and support system personnel to address academic skill deficits among children, adolescents; instructional design and delivery problems associated with deficits.

07P:346 Seminar in Psychoeducational Interventions II 3 s.h.
Interventions used by school and support system personnel to address behavioral and social/emotional status of children, adolescents.

07P:347 Home/School/Community: System Interventions 3 s.h.
Interventions used by school and support system personnel; focus on work with parents, siblings. Same as 07C:347.

07P:352 Seminar: Behavioral Assessment and Evaluation 3 s.h.
Prerequisite: 07U:240. Same as 07U:252.

07P:367 Organizations as Social Systems 3 s.h.
Social aspects of behavior in organizations; behavioral science theory and research on organizations, system change, transformation, leadership.

07P:390 Supervision of School Psychology Practicum/Internship arr.
Experience supervising school psychology practicum or internship students; for doctoral students. Prerequisite: consent of instructor.

07P:437 Internship in School Psychology arr.
Supervised internship for doctoral candidates in school psychology. Prerequisites: completion of course requirements for degree and consent of instructor.

07P:465 Issues and Ethics in Professional Psychology 3 s.h.
Professional ethics; issues in professional practice of psychology.

Instructional Design and Technology

07W:134 Instructional Video Production 3 s.h.
Basic video production; scriptwriting, preproduction planning, location and studio shooting, audio, lighting, and editing on videotape editing systems and digital systems using Premiere software on Power Macintosh computers. Same as 021:134.

07W:180 Special Topics in Instructional Design and Technology arr.
Areas of special interest for selected groups; content varies.

07W:200 Performance Analysis 3 s.h.
Systematic process of analyzing performance in order to identify problems, determine causes, and specify solutions. Prerequisite: consent of instructor.

07W:209 Development of CAI 3 s.h.
Application of learning theory and authoring tools to the design, development, and evaluation of computer-assisted instruction. Prerequisites: 07P:208 and consent of instructor.

07W:220 Advanced Instructional Design 3 s.h.
Application of topics to theories and models used in instructional psychology and design. Prerequisite: consent of instructor.

07W:263 Consultation Theory and Practice 2-3 s.h.
Analysis of consultation theories and practices from the related fields of instructional design, counseling, school psychology. Same as 07C:263, 07P:263.

07W:269 Survey of Research in Instructional Design arr.
Research and methods applied to instructional design; development of literature review, proposal writing. Prerequisites: 07P:143 and consent of instructor.

07W:293 Independent Study: Instructional Design for Majors arr.
Investigation in students’ areas of concern. Prerequisite: consent of instructor.

07W:370 Practicum in Instructional Design and Technology arr.
Supervised experience in an applied setting. Prerequisite: consent of instructor.

07W:371 Internship in Instructional Design and Technology arr.
Supervised administrative and other non-teaching experience in public schools, social agencies, higher education, or industry. Prerequisite: consent of instructor.

07W:387 Topical Seminar in Instructional Design and Technology arr.
Repeatable. Prerequisite: consent of instructor.

07W:391 M.A. Project in Instructional Design and Technology Project for the M.A.

07W:393 M.A. Thesis in Instructional Design and Technology Prerequisite: consent of instructor.

07W:493 Ph.D. Thesis in Instructional Design and Technology Prerequisite: consent of instructor.
College of Engineering

Dean: P. Barry Butler
Associate dean, research and graduate studies: Gregory R. Carmichael
Associate dean, academic programs: Alec B. Scranton
Director, Center for Computer-Aided Design: Kyung K. Choi
Director, Iowa Institute of Hydraulic Research: Virenda C. Patel
Director, Iowa Spine Research Center: Stuart Weinstein
Degrees: B.S.E., M.S., Ph.D.
Web site: http://www.engineering.uiowa.edu

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Engineering is defined by the Accreditation Board for Engineering and Technology as that profession in which knowledge of the mathematical and natural sciences gained by study, experience, and practice is applied with judgment to develop ways to use, economically, the materials and forces of nature for the benefit of mankind.

In short, engineering is the application of science and mathematics to solve problems for society.

The major aim of engineering is the creation of a new process, product, material, or system. This activity demands a high degree of creativity and problem solving ability coupled with a full understanding of engineering fundamentals, good judgment, and a practical sense of economics.

The College of Engineering prepares men and women for one or more of the many career opportunities in the engineering profession. Such opportunities include positions in design, production, development, research, management, and consulting. Engineers are employed in industrial organizations, governmental agencies, and private practice.

The College of Engineering’s mission is to develop, disseminate, transfer, and preserve technical knowledge that improves people’s lives. The college endeavors to:

- provide a well-rounded and superior engineering education that draws upon resources of a comprehensive research university to attract outstanding undergraduate and graduate students in selected engineering fields;
- conduct high-quality research in selected areas, enabling faculty members and students to keep pace with new developments and ensuring that the newest concepts are taught in its courses; and
- serve the needs of the University, industry, government, and the general populace by making its facilities and faculty expertise accessible.

**College Organization**

The College of Engineering is organized into five departments and four research units. The Departments of Biomedical Engineering, Chemical and Biochemical Engineering, Civil and Environmental Engineering, Electrical and Computer Engineering, and Mechanical and Industrial Engineering offer a total of six undergraduate programs and several graduate programs.

The four research units are the Iowa Institute of Hydraulic Research, the Center for Computer-Aided Design, the Iowa Spine Research Center, and the Center for Bioinformatics and Computational Biology.

**Undergraduate Programs**

The College of Engineering’s undergraduate programs are designed to attract the best and brightest students and prepare them to be engineers who will succeed in a workplace filled with diverse people, attitudes, and ideas; compete in the global marketplace; work effectively in multidisciplinary teams; and confidently understand, use, and develop modern technology.

The programs distinguish the college from others in the region. They draw on recognized strengths of The University of Iowa to offer unique opportunities for students who wish to pursue a wide range of career options and an education that goes beyond technology.

Each program emphasizes a broad understanding of fundamental principles common to all engineering disciplines and provides students with the opportunity to specialize in a selected engineering discipline. All build on the University’s research strengths. Program flexibility is provided by a curriculum in which each student develops engineering competency within a particular academic program and complements it with a tailored thematic option in support of chosen career objectives (e.g., engineering practice, project management, research and development).

**Bachelor of Science in Engineering**

The college offers programs leading to the Bachelor of Science in Engineering (B.S.E.) in six major fields: biomedical engineering, chemical engineering, civil engineering, electrical engineering, industrial engineering, and mechanical engineering.

These programs are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology. They are designed to ensure that graduates have the following general attributes:

- ability to apply knowledge of mathematics, science, and engineering;
- ability to design and conduct experiments as well as to analyze and interpret data;
- ability to design a system, component, or process to meet desired needs;
- ability to function on multidisciplinary teams;
- ability to identify, formulate, and solve engineering problems;
- understanding of professional and ethical responsibility;
- ability to communicate effectively in oral, written, and graphical forms;
- broad education necessary to understand the impact of engineering solutions in a global and societal context;
- recognition of the need to engage in lifelong learning and the ability to do so;
- knowledge of contemporary issues; and
- ability to use the techniques, skills, and modern engineering tools necessary for successful engineering practice.

Each program has articulated a set of educational objectives; see the College of Engineering departmental sections of the Catalog.

**Combined Degrees and Other Programs**

Any of the undergraduate programs offered by the College of Engineering may be combined with a program leading to a bachelor’s degree in the College of Liberal Arts and Sciences or a second bachelor’s degree in the College of Engineering. Many departments offer specific combined degree programs. For more information, contact the Student Development Center.

A minor in the Tippie College of Business or a minor or minors in any degree-granting departmental or approved program in the College of Liberal Arts and Sciences may be combined with any of the undergraduate programs offered by the College of Engineering. Engineering students also may pursue a certificate in technological entrepreneurship.

**Bachelor of Science in Engineering**

The College of Engineering adopted new undergraduate program curricula effective for all new students beginning fall semester 2002. The new curricula are described in this Catalog. Students who began their engineering studies before fall semester 2002 can continue to follow the old curricula (described in pre-2002 editions of the Catalog, existing program curriculum sheets, and degree evaluation forms), with possible course substitutions. They also may choose to change to the new curricula under conditions defined by each program and available from the college’s Student Development Center.

The Bachelor of Science in Engineering (B.S.E.) requires a minimum of 128 s.h. of credit, including satisfaction of the specific requirements of each undergraduate engineering program as described in the Catalog. Candidates for the B.S.E. degree must be enrolled in the College of Engineering for at least the last 30 s.h. of work toward the degree, or 45 of the last 60 s.h., or a total of 90 s.h. They must have a g.p.a. of at least 2.00 on all college work used to satisfy the degree requirement as well as on all work undertaken at The University of Iowa. In addition, candidates must have completed 22M:031 Engineering Mathematics I: Single Variable Calculus and 22M:032 Engineering Mathematics II: Multivariable Calculus, or their equivalents, with a grade of C- or higher in each course.

The faculty of each engineering program has established a curriculum—a set of required and elective courses that must be completed satisfactorily as part of the requirements for a degree in that program. General guidelines for establishing the course requirements in each program are provided by the national accrediting body, the Accreditation Board for Engineering and Technology (ABET). The purpose of the curriculum in each program is to prepare students for the practice of engineering in that program.

**Curriculum Stems**

The curriculum for each program is divided into four major curriculum stems: mathematics and
basic sciences; engineering topics; elective focus area; and general education (humanities and social sciences). In addition to the four major stems, there are a few general background courses that fall outside of the stems. These courses are scheduled in the first year. They include Engineering Problem Solving I and II and Rhetoric, which is a first-year course in writing, speaking, and critical reading. The Engineering Problem Solving I and II courses cover a breadth of topics from engineering as a profession to team design projects to engineering computations and computer programming.

All of the courses in the curriculum stems are integrated and sequenced to help students understand the interrelationships and importance of each stem.

**MATHEMATICS AND BASIC SCIENCES**

The mathematics and basic sciences stem provides the foundation upon which the engineering courses in each engineering program are based. This stem includes a minimum of five courses in mathematics and statistics and one each in chemistry and physics. The faculty of each engineering program has specified at least one additional chemistry or physics course and other additional mathematics or science courses beyond these minimum requirements to provide a base appropriate for the program's major.

**ENGINEERING TOPICS**

The second curriculum stem, engineering topics (science and design), builds upon the math and science stem, providing a bridge from fundamental principles to applications and creative practice.

The engineering science courses use the underlying principles learned in the mathematics and basic science courses to understand and predict the behavior of idealized models of real components or systems encountered in engineering. These courses include fundamentals of statics, thermodynamics, and electrical circuits, as well as other engineering courses relevant to each major.

Engineering design is the process of devising a system, component, or process to meet desired needs. It is a decision-making process, often iterative, in which the basic sciences, mathematics, and engineering sciences are applied optimally to convert resources to meet a stated objective. The design process includes the establishment of objectives and criteria, synthesis, analysis, construction, testing, and evaluation. Essential to the design process is the inclusion of realistic constraints such as economic factors, safety, reliability, aesthetics, ethics, and social and environmental impact.

**ELECTIVE FOCUS AREA**

In each undergraduate program, a pool of semester hours is set aside to enable students to build strength in a technical focus area, pursue a formal minor, earn a multidisciplinary certificate, or pursue a tailored program of study. Each program has its own set of guidelines and constraints for the elective focus area.

**GENERAL EDUCATION**

The fourth stem involves general education course work in the humanities and social sciences. This stem promotes understanding of and appreciation for society and culture.

### First and Second Years

Approximately one-third of the course requirements in each engineering program are common to all engineering majors. These common course requirements constitute a core program. Most of the courses in the core program are scheduled in the first and second years, along with a few program-specific courses. Hence, students generally may postpone making a decision about which engineering major to pursue or may change their engineering major through the first three semesters with little or no loss of time or credit. The remaining curriculum for each engineering program is listed in the College of Engineering departmental sections of the Catalog.

The common first- and second-year courses are outlined below. Not all students complete all of these courses in the first three semesters. Students who do not pursue the following three-semester plan common to all majors may encounter a delay in graduation because of scheduling problems for program courses that require sequencing or that are offered only once a year.

**First Semester**

- 004:011 Principles of Chemistry I (all majors) 4 s.h.
- 016:003 Accelerated Rhetoric (all majors) 4 s.h.
- 22M:031 Engineering Mathematics I: Single Variable Calculus (all majors) 4 s.h.
- 059:005 Engineering Problem Solving I (all majors) 3 s.h.
- 059:090 First-Year Engineering Seminar (all majors) 0 s.h.

**Second Semester**

- 004:012 Principles of Chemistry II (biomedical, chemical, and environmental majors) 4 s.h.
- or
  - General education component 1 (civil, electrical, industrial, and mechanical majors) 3 s.h.
- 22M:032 Engineering Mathematics II: Multivariable Calculus (all majors) 4 s.h.
- 22M:033 Engineering Mathematics III: Matrix Algebra (all majors) 2 s.h.
- 029:081 Introductory Physics I (all majors) 4 s.h.
- 059:006 Engineering Problem Solving II (all majors) 3 s.h.

**Third Semester**

- 22M:034 Engineering Mathematics IV: Differential Equations (all majors) 3 s.h.
- 029:082 Introductory Physics II (biomedical, civil, electrical, industrial, and mechanical majors) 3-4 s.h.
- or
  - General education component 1 (optional, chemical and environmental majors) 3 s.h.
- 059:007 Engineering Fundamentals I: Statics (all majors) 2 s.h.

**General Education Component**

Students choose 15 s.h. of general education (humanities and social science) courses from approved departmental and college areas. Among these 15, at least 3 s.h. must be from the pool of courses designated by the College of Engineering as humanities courses, and at least 3 s.h. must be from the pool of courses designated by the college as social science courses. To ensure depth, at least 6 s.h. of general education credit should be earned in intermediate (100-level) courses. At least one of the 100-level courses should be taken in the same department as a lower-level course already completed.

Humanities and social science subject areas are as defined by the College of Engineering; they may not correspond to the same area definitions used in the College of Liberal Arts and Sciences. Specific engineering programs may require further depth in one area and may include one or more of the general education requirements as part of a student's elective focus area.

Courses that are primarily mathematical or scientific in nature and those designed specifically to develop introductory writing, artistic, or music skills are not acceptable as social science or humanities electives.

For specific information regarding approved courses, contact the Student Development Center or visit the college's web site. Credit may be earned by examination (see “Credit by Examination”).

Humanities and social science course work transferred to The University of Iowa by students with A.A. degrees who enter the College of Engineering directly from two-year schools is evaluated on the same basis as similar course work transferred by other students entering the college without a B.A. or B.S. degree.

Students who enter the College of Engineering with a B.A. or B.S. degree are considered to have satisfied the general education (humanities and social science) requirement.

Students who enroll in a combined degree program in the College of Engineering and the College of Liberal Arts and Sciences are considered to have satisfied the College of
Engineering's general education requirement once they have completed all requirements for the liberal arts degree.

**Elective Focus Area**

Students choose elective focus area courses in two broad categories: traditional career goals and nontraditional career goals. The degree plans students choose to pursue and the courses they take may affect the number and type of employment opportunities available to them after graduation. Program advisers help students develop coherent, well-focused plans that fit their goals.

Students who pursue a well-defined plan may replace up to 21 s.h. of traditional technical electives with course work toward a minor or certificate. Or with an adviser's guidance, they may pursue a rigorous, well-focused, nontraditional program outside existing minor or certificate programs. Each College of Engineering undergraduate program is responsible for approving proposed plans of study, ensuring that the program's ABET accreditation criteria are met and that students' choices are consistent with their career aspirations and with the college's educational mission.

To pursue one of these alternatives, a student must define and justify his or her career goal, obtain the program's approval for the detailed plan of study before taking the courses, and then complete the plan as it has been defined.

Guidelines for elective focus areas vary by program and are described in each program's curriculum guidelines.

**Four-Year Graduation Plan**

College of Engineering students who choose to participate in the University's Four-Year Graduation Plan must be admitted on schedule and complete specified courses in the first year in order to stay on the plan. They must work closely with their advisers to make sure they know what requirements must be met and the appropriate sequences in which to take courses.

The agreement holds both the student and the University responsible for clearly defined actions to ensure graduation within four years. Since changes in a student's interests may lead to changes in goals or majors, there is no penalty for withdrawing from the four-year graduation plan. For more information, contact the College of Engineering's Student Development Center.

**Minors**

Students graduating from the College of Engineering may earn a minor in the Tippie College of Business or a minor in any degree-granting department or approved program in the College of Liberal Arts and Sciences. A minor in another college may be earned by satisfying requirements established by the college offering the minor. A notation of the minor is entered on the student's permanent record.

College of Engineering programs generally allow use of a non-engineering minor to satisfy their elective focus area requirements. Students who pursue this option must work closely with program advisers to ensure compatibility with their engineering career aspirations.

Students must inform the Office of the Registrar of their fulfillment of minor requirements when they apply for a degree. This assures that the minor designation is included on their transcript.

**Minor in Business**

Requirements for this minor are two economics courses (06E:001 and 06E:002), two accounting courses (06A:001 and 06A:002), a marketing course (06M:100), a management course (06:048), a finance or engineering economy course (06E:100), a legal course (06J:047), and a computer course (06K:070). Students may consult the Undergraduate Programs Office in the Tippie College of Business for alternate ways of satisfying the computer course requirement. In addition to these courses, students are required to complete a calculus course and a statistics course.

Engineering majors satisfy the mathematics and statistics requirements with courses 22M:031 and 22S:039. A g.p.a. of at least 2.00 in courses applicable to the minor is required. In addition, students must complete at least 15 s.h. of courses for the minor in residence at The University of Iowa. For more information about the business minor, contact the Undergraduate Programs Office in the Tippie College of Business.

**Minor in Liberal Arts and Sciences**

Requirements for the minor are a minimum of 15 s.h. in the minor department, including at least 12 s.h. in advanced courses taken at The University of Iowa and acceptable to the department. Students should confer with the minor department to identify acceptable courses. Students must achieve a g.p.a. of at least 2.00 in the courses applicable to the minor. Courses counted toward the minor may not be taken pass/nonpass.

**Certificate in Technological Entrepreneurship**

The College of Engineering and the Tippie College of Business offer a joint program leading to the Certificate in Technological Entrepreneurship. The program entails study of the entrepreneurial process as it relates to technology.

The certificate program is designed not only for students who intend to start and/or operate their own business but for any student interested in gaining a better understanding of the entrepreneurial process. The range of electives in the program permits students to tailor areas of specialization to their individual interests.

Interested students must declare their intention to pursue the certificate with the college's technological entrepreneurship program faculty representative. To receive the certificate, students must receive a degree in engineering; maintain a g.p.a. of at least 2.00 on all coursework taken for the certificate; and take at least 12 s.h. of course work for the certificate at The University of Iowa or in approved study-abroad programs.

Completion of the program's requirements results in the notation "Certificate in Technological Entrepreneurship" on the student's transcript. Students interested in earning the certificate can obtain application information at the dean's office.

**Cooperative Education and Internship Program**

The Cooperative Education and Internship Program offers students the opportunity to explore engineering careers and develop engineering skills through periods of professional practice. Supervised professional engineering-related experiences in business, industry, education, or government expose students to the challenges and opportunities of the day-to-day life of an engineer. Students with co-op and/or internship experience are sought by employers and usually receive higher starting salaries upon graduation. A portion of registered co-op and/or internship experience before graduation can be credited toward the experience requirements for professional licensure in Iowa and some other states.

Qualified students may choose to alternate periods of on-campus study with full-time work experience, or they may elect to work half-time while taking at least 6 s.h. of classes. The co-op experience can cover one to three semesters, a series of summer placements, or a single summer. Students may apply to the program following their first year. Academic record and class status are considered in acceptance decisions. Interested students and employers or organizations are required to register on recruiting and contact the director of co-ops and internships in the College of Engineering. For more information, see the college's web site.

**Two Bachelor's Degrees in Engineering**

Recent College of Engineering graduates and current students may earn two bachelor's degrees in engineering. The requirements for the second degree are to complete, with a g.p.a. of 2.00 or higher, at least 30 s.h. of residence course work beyond the 128 s.h. required for the first degree program. The additional 30 s.h. must include all courses required by the Engineering program selected for the second degree, including the senior-level design course sequence and any specific social science elective requirements. Elective focus area courses selected for the second degree program must be of a variety and level that permit students to meet at least the minimal level of competence usually expected of graduates of that program.

Students must file an academic plan of study, which must be approved by the faculty of the second degree program and submitted to the Student Development Center, before they may initiate course work in the second degree program. The proposed academic plan of study should include a list of the courses to be taken in the second program along with a list of the courses already completed and yet to be completed for the first engineering degree program. The approved plan must be submitted to the Student Development Center and placed
in the student’s permanent file before the student begins course work in the second program. Any changes in the plan must be approved by the student’s faculty adviser in the second program and by the department chair of that program (the college petition form may be used for this purpose) and submitted to the Student Development Center for inclusion in the student’s permanent file.

Combined Engineering/Liberal Arts and Sciences Program

Students may earn two University of Iowa baccalaureate degrees in a combined program in the College of Engineering and the College of Liberal Arts and Sciences. Successful candidates are awarded a B.S.E. (Bachelor of Science in Engineering) by the College of Engineering and a B.A. (Bachelor of Arts), B.S. (Bachelor of Science), B.E.A. (Bachelor of Fine Arts), or B.M. (Bachelor of Music) by the College of Liberal Arts and Sciences.

To qualify for both degrees in the combined degree program, candidates must complete an overall total of 158 s.h. of credit, including at least 30 s.h. of courses offered by the College of Engineering and at least 30 s.h. of courses offered by the College of Liberal Arts and Sciences. Students completing the combined degree program must receive both degrees simultaneously.

Students in the combined program usually can meet the baccalaureate degree requirements of both colleges in about five academic years. The exact length of time necessary to complete the program is determined by the major areas of study selected in each college. Students who enter the combined degree program are assigned two faculty advisers, one in their major department in the College of Engineering and the other in their major department in the College of Liberal Arts and Sciences.

To enter the combined degree program, students must be admitted to both the College of Engineering and the College of Liberal Arts and Sciences and must be approved for candidacy in the combined degree program by the College of Engineering. Students who enter the program are required to complete the general education components and all other requirements for both majors. Combined degree program applicants must meet the high school course or unit requirements for admission to each of the two colleges.

It is crucial that students enroll in the proper mathematics and engineering courses early in their course of study to expedite the completion of the program. The specific engineering courses taken by each student vary according to the engineering major selected. Since courses in natural sciences, mathematics, humanities, and social sciences are accepted regularly for credit by both colleges, students may satisfy the requirements of both colleges by taking a particular course.

Information about specific requirements is available from the Student Development Center.

3+2 Dual Degree With Northern Iowa

The 3+2 dual degree program leads to a B.S. in applied physics from the University of Northern Iowa (UNI) and a B.S.E. from The University of Iowa. It requires approximately three years of study at UNI followed by approximately two years of study at Iowa. There is no guarantee that students can complete the 3+2 degree in five years.

Students interested in the program are guaranteed admittance to The University of Iowa portion of the program if they have a g.p.a. of at least 3.00 (B average) in all course work and in the chemistry, mathematics, and physics courses required by the University of Northern Iowa physics department.

During the first three years of the program, students complete at least 90 s.h. of course work at the University of Northern Iowa. They must successfully complete courses in each of the following areas: mathematics, mathematics through differential equations, physics to satisfy the applied physics major requirements, and courses to satisfy the General Education requirements. Credit for courses passed with a grade of C or higher is transferred to The University of Iowa as credit for equivalent courses there.

At The University of Iowa, students complete the B.S.E. requirements that were current at the time of their admission to the UI College of Engineering. Course work completed at The University of Iowa is transferred to the University of Northern Iowa and applied toward the requirements for that institution’s B.S. in applied physics.

When transferring to Iowa from UNI, students must submit applications for admission, housing, and financial aid to The University of Iowa by the University’s established deadlines.

Joint B.S.E./M.S. or M.A. in Planning

A program combining a bachelor’s degree in engineering with a master’s degree in urban and regional planning has been developed for students who want to pursue a career in planning in either the public or private sector. Planning encompasses the development of alternatives to improve the quality of life in cities and regions.

Graduates of the combined program are technically oriented professionals who have a clear understanding of policy development and implementation. They fill positions such as public works director, transportation engineer, and public utilities staff member. Their work involves a blend of civil and industrial engineering problems and policy analysis.

The joint degree program satisfies all requirements of both degree programs. It requires a minimum of 152 s.h., including at least 45 s.h. of urban and regional planning graduate courses. Completion of the program takes five years—one fewer than would be required for consecutive completion of both programs.

Each student in the joint program has two advisers, one in engineering and one in urban and regional planning. Students enroll in the College of Engineering for their first four years in the program and in the Graduate College for their fifth year. Successful students receive a B.S.E. at the end of the fourth year and an M.A. or M.S. in planning at the end of the fifth year.

To join the combined degree program, students must first be admitted to the College of Engineering. During spring semester of their second year in engineering, they apply for admission to the joint program. Students admitted to the program apply for admission to the Graduate College at the end of their fourth year. Applicants must have completed all requirements for a B.S.E., have an undergraduate g.p.a. of at least 3.00, and earn a score on the Graduate Record Exam (GRE) General Test judged satisfactory by the Planning Admissions Committee.

While enrolled in the College of Engineering, students must maintain the overall grade-point average required by their engineering program. Students also must maintain a g.p.a. of at least 3.00 in planning courses in the joint program. If they do not, they may be placed on academic probation, and if they fail to satisfy the conditions of probation, they are dismissed from the joint program. Dismissal from the joint program does not affect a student’s standing in the College of Engineering.

Students in the joint program must maintain a cumulative g.p.a. of at least 3.00 in order to graduate with an M.A. or M.S. in Planning.

Joint Program Curriculum

Students in the joint program follow the standard B.S.E. curriculum appropriate to their College of Engineering program during the first and second year. Urban and regional planning courses are added in the third and fourth years. Students earn 15 s.h. of their required B.S.E. elective focus area credit in courses that also meet the requirements of the M.A. or M.S. in planning.

During the summer after the fourth year, most students in the joint program complete an approved internship.

The fifth year usually includes the remaining urban and regional planning core courses and electives. Students take the M.S. or M.A. comprehensive examination during spring of the fifth year.

A typical plan of study calls for completion of the following planning courses during the third and fourth years [15 s.h. are applied to requirements of both the B.S.E. elective focus area and the planning courses].

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>102:202</td>
<td>Land Use Planning: Law and Practice</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>102:205</td>
<td>Economics for Policy Analysis</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>102:201</td>
<td>Analytic Methods in Planning II</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>102:203</td>
<td>History and Theories of Planning</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>
During the fifth year and the preceding summer session, students take the remaining 30 s.h. of planning courses, as follows. This completes the 45 s.h. of planning course work required for the M.S. or M.A.

Summer before fifth year:
102:335 Internship 2 s.h.

Fifth year, fall semester:
102:208 Program Seminar in Planning Practice 1 s.h.
102:209 Field Problems in Planning I 1 s.h.
Electives 12 s.h.

Fifth year, spring semester:
102:210 Field Problems in Planning II 3 s.h.
Electives 11 s.h.

Undergraduate Academic Rules and Procedures

Admission

To be considered for admission to the College of Engineering as first-year students, applicants must have successfully completed at least four years of English/language arts; four years of mathematics, which must include at least two years of algebra, one year of geometry, one-half year of trigonometry, and one-half year beyond trigonometry; two years of a single foreign language; three years of natural science, which must include at least one year of chemistry and at least one year of physics; and at least two years of social studies. A high school computer programming course is recommended but not required.

Successful applicants to the College of Engineering generally have an ACT composite score of 25 or higher; an ACT math score of 25 or higher; class rank in the top 30 percent; and a strong background in math and science. Involvement in extracurricular activities is desirable. Students who do not meet these requirements are encouraged to send recommendations from math and science teachers, and a personal statement.

Incoming first-year and transfer students who do not meet the foreign language requirement may be admitted on a conditional basis for a maximum of four regular semesters in order to complete two semesters of an introductory college-level foreign language.

Students who do not meet the other high school unit requirements may be admitted on special review by the College of Engineering. They may be required to make up deficiencies by taking a lower-level course in their area of deficiency before enrolling in the first required course in that area. For example, students who have high math grades and standardized test scores, but who are deficient by one unit in mathematics, may be required to complete a course such as 22M:009 Elementary Functions before enrolling in the first engineering calculus course.

Courses taken at The University of Iowa to make up deficiencies do not count toward graduation. For more information about making up specific unit deficiencies, consult the college’s Student Development Center.

Students who are unsure whether to pursue a degree in engineering or a degree in liberal arts and sciences are strongly encouraged to begin in engineering if they meet the admission requirements.

Transfer applicants must have completed the same high school unit requirements as entering first-year students and must submit an official high school transcript as well as a transcript of college work undertaken at other institutions. To transfer to the College of Engineering, students must have demonstrated success in math, science, and engineering courses, ideally earning all As and Bs with no grade lower than a C in these foundation subjects. Transfer students must have completed Calculus I and the equivalent of either Principles of Chemistry I or Introductory Physics I (the first semester of chemistry designed for majors, or the first semester of calculus-based physics). Overall grade-point average also is considered in transfer applications.

Academic Advising

Undeclared engineering students are advised by the staff members in the Student Development Center. Engineering students who have declared an academic program are advised by faculty advisers assigned to that program. Students may request a change of adviser when it is deemed appropriate. All students are required to have a conference with their advisers before registering for classes each semester.

Application for Degree

Students who wish to be considered for graduation must file an application for degree with the Office of the Registrar before the deadline date during the session in which the degree is to be conferred.

Students who do not graduate on the date indicated in the application for degree must file another application for degree for the next applicable session. Students do not need to be registered to apply for a degree.

Academic Recognition

Honors Program

The College of Engineering Honors Program provides special recognition for outstanding undergraduate students who demonstrate exceptional accomplishment through research, directed independent study, teaching internships, or other approved nondegree enrichment activities. Honors students participate in a college-wide honors seminar with faculty members and other honors students. Junior and senior engineering students with a cumulative University of Iowa g.p.a. of at least 3.33 are eligible to apply to the University Honors Program (contact the University Honors Program for more information). Successful completion of the honors program requirements leads to a B.S.E. with honors, which is recorded on the student’s University academic record.

First-year and sophomore students interested in honors are encouraged to participate in the University Honors Program, which provides access to all of the services offered through the University’s Honors Center. Students also are encouraged to join the Association of Iowa Honors Students, which sponsors a variety of social and educational activities each year. Engineering students are the second largest collegiate group in the University Honors Program.

For more information or to apply, contact the college’s Student Development Center.

Graduation With Honors

High scholastic achievement is certified in two ways; graduation with distinction based on grades only, and graduation with honors based on both grades and exceptional accomplishment. To be eligible for graduation with honors, students must be recommended by their major department, approved by a selected honors committee and the director of the honors program, and complete honors requirements.

Graduation With Distinction

The college awards degrees “with highest distinction” to students in the highest 2 percent of their graduating class, “with high distinction” to students in the next-highest 3 percent, and “with distinction” to students in the next-highest 5 percent. Ranking is based on students’ grade-point averages for all college-level study undertaken up to their final registration.

To be eligible to graduate with distinction, students must take their final 60 s.h. of study in residence at the college and must have completed at least 45 s.h. of study in the college before their final registration. Students in the combined engineering/liberal arts and sciences program are eligible for this recognition regardless of the college in which they complete their residency requirements.

Dean’s List

Undergraduate students in the College of Engineering who achieve a g.p.a. of 3.50 or higher on 12 s.h. or more of graded work (excluding University of Iowa Guided Correspondence Study courses) during a given semester and who have no hours of I (incomplete) or O (no grade reported) during the same semester are recognized by inclusion on the Dean’s List for that semester.

President’s List

University of Iowa undergraduate students who achieve a g.p.a. of 4.00 on 12 s.h. or more of graded work and who have no hours of I (incomplete) or O (no grade reported) for two consecutive semesters (excluding summer sessions) are recognized by inclusion on the President’s List.
**Academic Standards**

**Maximum Schedule**
Course schedules of more than 18 s.h. for a semester, 9 s.h. for a summer session, or 3 s.h. for a winter session require approval of the advising staff in the college's Student Development Center.

**Classification of Students**
Students in the College of Engineering are classified by the number of semester hours of credit they have earned toward the Bachelor of Science in Engineering.
First-year: 0-29 s.h. earned toward the B.S.E.
Sophomore: 30-59 s.h. earned toward the B.S.E.
Junior: 60-89 s.h. earned toward the B.S.E.
Senior: 90 s.h. or more earned toward the B.S.E.

**Grading System**
The college uses a letter grading system with a plus or minus to designate gradations of performance between the letters. The numerical equivalents of the letter grades with the plus and minus options are as follows.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Grade Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>4.33</td>
</tr>
<tr>
<td>A</td>
<td>4.00</td>
</tr>
<tr>
<td>A-</td>
<td>3.67</td>
</tr>
<tr>
<td>B+</td>
<td>3.33</td>
</tr>
<tr>
<td>B</td>
<td>3.00</td>
</tr>
<tr>
<td>B-</td>
<td>2.67</td>
</tr>
<tr>
<td>C+</td>
<td>2.33</td>
</tr>
<tr>
<td>C</td>
<td>2.00</td>
</tr>
<tr>
<td>C-</td>
<td>1.67</td>
</tr>
<tr>
<td>D+</td>
<td>1.33</td>
</tr>
<tr>
<td>D</td>
<td>1.00</td>
</tr>
<tr>
<td>D-</td>
<td>0.67</td>
</tr>
<tr>
<td>F (failing)</td>
<td>0</td>
</tr>
</tbody>
</table>

This grading system is used for all students in both undergraduate and graduate engineering courses. Grades of D- are passing grades; that is, courses completed with grades of D- or higher count toward collegiate requirements, with the exception of 22M:031 and 22M:032 Engineering Mathematics I-II: Single and Multivariable Calculus, which have a minimum grade requirement of C- or higher. Grades of A+ have a value of 4.33 in calculating grade-point averages, but averages displayed in University records are truncated so that they do not exceed 4.00.

**Academic Probation and Dismissal**
Students who do not achieve or surpass the following University of Iowa cumulative and semester minimum grade-point averages are placed on academic probation.
First-year (0-29 s.h. earned toward B.S.E.), 1.80
Sophomore (30-59 s.h. earned toward B.S.E.), 1.90
Junior (60-89 s.h. earned toward B.S.E.), 1.95
Senior (90 or more s.h. earned toward B.S.E.), 2.00

Students on academic probation are restored to good standing when they successfully complete an additional 9 s.h. toward an engineering degree, either in one semester or cumulatively, and their University of Iowa cumulative and semester grade-point averages equal or exceed those designated above.

The college reviews academic records for all students at the end of the fall and spring semesters. There is no review at the end of the summer session. Students are placed on probation, dismissed for unsatisfactory progress (with or without previous probationary status), or restored to good standing only at the end of the fall and spring semesters. Students on academic probation are not permitted to continue their enrollment without written expectations for their future performance. Details of the procedure are available from the Student Development Center.

Students who do not make satisfactory progress may be dismissed from the college without an intervening probationary period. Students who are dismissed from the college for unsatisfactory academic progress due to circumstances beyond their control, such as a death in their immediate family or extended personal illness, may appeal for a revocation of the dismissal. A student dismissed in January must submit a written appeal by the second day of spring semester classes. A student dismissed in May must submit the written appeal by June 15.

Students dismissed from the college for poor scholarship may appeal to reenroll after an interval of at least one calendar year. A written appeal for reinstatement must be submitted to the Appeals Committee at the Student Development Center. Appeals must be submitted before June 15 for reinstatement in a fall semester or before December 1 for reinstatement in a spring semester. Detailed information about the appeal procedure is available from the Student Development Center.

**Dropping and Adding Courses**
Courses may be added with permission of the adviser and the instructor during the first three weeks of the semester or first one and one-half weeks of the summer session. Courses may be dropped with permission of the adviser and the instructor at any time during the first 10 weeks of the semester. Only under compelling circumstances may courses be dropped after the 10th week, in which case special approval must be granted by the adviser, the course instructor, and the dean's office.

**Withdrawal of Registration**
Students who withdraw their entire registration must consult the staff at the Student Development Center. A student on scholastic probation who withdraws registration at any time without good cause may not be permitted to enroll for the following semester without specific approval from the Student Development Center.

A student on scholastic probation may appeal to reenroll after an interval of at least one calendar year. A written appeal by the second day of spring semester classes. A student dismissed in January must submit the written appeal by June 15.

Students dismissed from the college for poor scholarship may appeal to reenroll after an interval of at least one calendar year. A written appeal for reinstatement must be submitted to the Appeals Committee at the Student Development Center. Appeals must be submitted before June 15 for reinstatement in a fall semester or before December 1 for reinstatement in a spring semester. Detailed information about the appeal procedure is available from the Student Development Center.

**Pass/Nonpass Option**
A maximum of two courses taken pass/nonpass (P/N) may be applied toward satisfaction of the general education (humanities and social sciences) requirement. P/N registration must be approved by the student’s adviser and the instructor of the course and must be completed during the first three weeks of a semester or the first two weeks of a summer session. P/N registration may not be changed after the deadline for adding courses. The pass/nonpass option may not be used for courses taken to satisfy the rhetoric requirement. Guided Independent Study courses taken for humanities or social science credit may not be taken P/N.

Students enrolled in courses taught in the College of Engineering may choose to be graded pass/nonpass under the following conditions:

- the signatures of the adviser and instructor must be obtained on the proper form, and the completed form must be submitted to the registration center by the student within the time period established by University policy;
- the mark of P (pass) is awarded where the final course grade earned was C- or higher; the mark of N (nonpass) is given for grades of D+ or below; marks of P and N are not used in computing the grade-point average, and the mark of N does not count as earned hours.

No course work taken pass/nonpass may be used to satisfy requirements for an engineering degree.

**Second-Grade-Only Option**
A student may elect to repeat a course with only the new grade being counted in his or her grade-point average. The option may be applied
to no more than three courses, and it may be applied only once to a given course. Transfer students may apply the option on a prorated basis.

A course may not be repeated under the second-grade-only option once it has been used as a prerequisite for a more advanced course that the student has completed successfully.

Students who want to exercise this second-grade-only option should register as usual for the course that is to be repeated, then complete a second-grade-only option form at the Student Development Center. This form must be completed during the session in which the course is repeated—during the first 12 weeks of the fall or spring semester or the first six weeks of the summer session. (Unless the student follows the procedure stated above, both grades will be counted in the UI grade-point average.)

Under the provisions of this option, the registrar marks the permanent record to show that a particular course has been repeated. Both grades remain on the permanent record, but only the second one is used in calculating the grade-point average and hours earned. The course must be taken the second time under the same circumstances and with the same grade option as it was taken the first time.

The second-grade-only option cannot be used to remove a grade of incomplete, which must be removed in the usual manner. A student who holds a degree from The University of Iowa may not use the second-grade-only option on a course taken before the degree was conferred.

Satisfactory/Fail Courses

The noncredit professional seminar courses required in each of the professional programs are offered only satisfactory/fail (S/F). No other engineering courses are offered on this basis. An F (failure) grade earned for such a class does not satisfy any portion of the professional seminar requirement.

Incomplete and No Report Grades

A mark of I (incomplete) or O (no report) that is not replaced by a final grade before the announced deadline during the student’s next regular semester of registration is replaced by a final grade of F (fail). Students with incompletes from the spring semester are exempt from completing the course during the succeeding summer session.

Credit by Examination

Students who have acquired knowledge in subject matter areas from sources other than formal course registrations may be granted credit toward graduation by examination, under the following conditions and limitations.

No more than 32 s.h. of credit by examination may be applied toward B.S.E. degree requirements.

CLEP (College-Level Examination Program) credits may be counted toward the lower-level general education (humanities and social science) requirements. Information is available from the Student Development Center. CLEP credit earned in natural science areas does not count toward the engineering degree.

Credit may be earned through the Advanced Placement Program. Information is available from the Student Development Center.

Credit may be earned for equivalent experience or former course work in any of the required common core courses through successful completion of examinations prepared and graded by the core course committees. Students who fail a core course are not permitted to earn credit by examination for the failed course. Students who wish to earn credit for core courses by examination must obtain approval from the associate dean for academic programs.

With approval of the departmental faculty, credit in three or fewer courses (totaling no more than 6 s.h.) may be awarded upon successful completion of final examinations in program elective courses.

Foreign Language Incentive Program

The Foreign Language Incentive Program gives entering engineering students two options for earning college credit.

Option 1: Entering students who place into a fifth-semester language course and complete the course with a grade of B- or higher receive 4 s.h. of exam credit for the fourth-semester course. The credit is ungraded but may count toward the hours required for graduation. Incentive credit is not granted for college course work for which credit has been received.

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

Option 2: Students may receive 2 s.h. of exam credit for earning a grade of B- or higher in a first-semester language course and complete the second-semester-level course in that language for a grade of B- or higher.

For more information on eligibility and restrictions, consult the Student Development Center.

Credit From Other Colleges

Course requirements in engineering may be satisfied with credit earned from courses taken in other University of Iowa colleges or at other accredited colleges or universities. When students apply for admission to the College of Engineering, they must submit official transcripts from each college attended along with their application for admission. After the credit has been certified by the Office of Admissions as college-level work from an accredited institution and after admission has been granted, the credit is evaluated by the Student Development Center either before or during the student’s first semester of enrollment in the college.

Satisfaction of engineering course requirements by transfer course work may be approved by the Student Development Center if, on a course-by-course basis, there is a match in the content and level of the transfer courses, and if the grades earned for such courses are C- or higher. Students who want to satisfy the engineering general education (social sciences and humanities) requirements or The University of Iowa rhetoric requirements by transfer work should contact the Student Development Center for details.

Students planning to attend a two- or four-year institution before transferring to the College of Engineering should discuss the planned transfer with officials at both schools before embarking on a transfer program. The College of Engineering has recommended course lists for most Iowa community colleges and some four-year colleges. The course lists are available from the Student Development Center. Once students are enrolled in the College of Engineering, all course work they have taken at other institutions must be preapproved by the Student Development Center if credit for it is to be applied toward engineering degree requirements.

By policy of the Board of Regents, State of Iowa, a student may apply a maximum of 64 s.h. of transfer credit earned at a two-year college toward the 128 s.h. required for the B.S.E. However, transfer credit from a two-year school in excess of 64 s.h. is used in computing grade-point average and may be used to satisfy course requirements, even though the semester hours cannot be counted toward the total required for graduation. A grade of C- or higher is required in order for transfer credit to be applied toward a degree requirement.

Course Substitutions

For students in the College of Engineering, the substitution of an alternate course for a required course requires the approval of a petition. The petition form is available in the Student Development Center. The form must be completed by the student and approved by the student’s adviser and by the chair of the academic department in which the student is majoring.

If the petition involves a required engineering core course or a general education (social sciences or humanities) course, then it also must be approved by the associate dean who acts on behalf of the college curriculum committee. Substitutions for required engineering core courses should occur infrequently and only under compelling circumstances. Substitutions of courses that are required by the student’s program are governed by the faculty of that program; approval of these course substitutions is needed only from the faculty adviser and the department chair. All petitions must be forwarded to the Student Development Center for inclusion in the student’s permanent file.

Auditing Courses

Students in the College of Engineering may register for a course for zero credit (audit) with the permission of the course instructor and the adviser. The mark of R is assigned to students registered for zero credit if attendance and performance in the course are satisfactory; if unsatisfactory, the mark of W is assigned. Courses completed with a mark of R do not meet any requirements nor do they carry any credit toward graduation. Auditing may not be used as a second-grade-only option.

To register for a course on an audit basis, students must obtain the instructor’s authorizing
signature and their adviser’s signature and must register for 0 s.h. To change registration from audit to credit or from credit to audit, a drop-add form is used. These changes must be made during the first three weeks of a semester or the first one-and-one-half weeks of a summer session.

Misconduct, Complaints

Student Academic Misconduct

Regulations dealing with cases of cheating or plagiarism are delineated in Policies and Regulations Affecting Students. In cases of cheating on an exam or quiz, the policy recommends that the instructor reduce the student’s grade, including the assignment of F for the course. When a course grade has been reduced to an F, the student may not drop the course or use the second-grade-only option to eliminate the failing grade.

At the beginning of each semester, course instructors individually announce and explain their policies on acceptable levels of student-student collaboration on graded work, which includes homework assignments, and lab or design projects. When a policy is violated, a zero is assigned for the total portion of the course grade allocated to the requirement in which the violation occurs. The instructor sends a written report of any disciplinary action to the office of the dean and the report is placed in the student’s file. Students are notified by the office of the dean of any disciplinary action reported and are informed of appeal procedures.

Student Complaints Concerning Faculty Actions

In cases where complaints do not involve alleged student academic misconduct, students with complaints against faculty members first should attempt to resolve the issue with the faculty member. Lacking a satisfactory outcome, the student should discuss the matter with the chair of the faculty member’s department.

Students who are uncomfortable dealing directly with a faculty member or a department chair may seek assistance from the engineering faculty ombudsperson when attempting to resolve a complaint related to an engineering course. Students taking nonengineering courses should seek assistance from the University ombudsperson. However, grievances generally can be satisfactorily resolved most expeditiously at the faculty or chair level. If students are not satisfied with the outcome of this procedure, they should discuss their complaints with the dean of engineering.

Professional Licensure

Licensure as a professional engineer is governed by the laws of each state. Most states’ minimum requirements include graduation from an accredited engineering curriculum of at least four years, followed by at least four years of practical experience and successful completion of two major examinations.

The agency that controls and monitors the licensing procedure in Iowa is the Iowa Engineering and Land Surveying Examining Board. The first step in the procedure for students enrolled in an accredited program is to pass an examination on engineering fundamentals given near the time of graduation. Following graduation and the successful completion of the engineering fundamentals exam, graduates receive an Engineer-in-Training (EIT) certificate. The final step in the procedure is to pass the principles and practice exam in a specialty area following a minimum of four years of approved professional experience. At this point, the graduate engineer is a licensed “Professional Engineer.”

Graduate Programs

The College of Engineering offers programs leading to the Master of Science and Doctor of Philosophy degrees in the fields of biomedical engineering, chemical and biochemical engineering, civil and environmental engineering, electrical and computer engineering, industrial engineering, and mechanical engineering.

The general rules and regulations for graduate study at The University of Iowa are established by the Graduate College (see the Graduate College section of the Catalog). Specific admission and degree requirements for individual graduate programs in engineering are outlined in the College of Engineering departmental sections of the Catalog. Also included in those sections is a description of the financial aid available in each program and the principal areas of study and research.

College Facilities

The Seamm Center for the Engineering Arts and Sciences is home to the College of Engineering. Dedicated in 2001, the Seamm Center combines new construction with extensive renovation of the former Engineering Building to provide space for learning, teaching, research and collaboration that anticipates the needs of 21st-century engineering.

The center’s Student Commons and John Deere Plaza Lobby provide welcoming space for students to work individually or together on homework and projects, with wireless computer connections. Additional work rooms and conference areas join the center’s expanded classrooms and flexible research space in an environment designed to serve the needs of the college’s students, faculty, and staff.

All five of the college’s departments have headquarters in the building, and most faculty offices are located there.

Engineering Library

The Lichtenberger Engineering Library is a center of college activity. It maintains a collection of more than 100,000 volumes and provides access to more than 1,000 current journal titles. The library offers internet access to a wide array of indexes and abstracts and houses a significant collection of standards. Study space is provided for library users.

Technical Communication Center

The Center for Technical Communication (CTC) helps undergraduate engineering students develop and polish their written communication skills. The center’s coordinator and assistant coordinator supervise a staff of professional writing consultants and peer consultants.

CTC writing consultants are professional instructors who work in teams to help engineering faculty members present and evaluate writing-intensive assignments. They also provide individual feedback and assessment of students’ work throughout the writing process.
Engineering Career Services

Engineering Career Services (ECS), part of the college's Student Development Center, provides engineering students and alumni with comprehensive career services. The ECS professional staff assists students with career exploration and career search skills, helping them choose and seek rewarding careers.

ECS clients receive career and job search counseling and attend seminars appropriate to their goals and knowledge of careers. Students receive the guidance they need to be competitive in the job market. Up-to-date employer, salary, and industry information helps them make informed decisions.

ECS resources that support development of job search skills include résumé and cover letter critiques; videotaped practice interviews; advice on career decision making, job search strategies, and interviewing; online job listings for full-time, part-time, internship, and co-op positions; information on regional and national employers, including the National JobBank, Harris InfoSource, Online recruiting system, and numerous company information binders; and free career publications.

The office also maintains a web site (see “Resources for Current Students” and “Student Services” on the College of Engineering web site).

Computer Systems Support

Engineering Computer Systems Support (CSS) provides for curricular computing at the College of Engineering. A large network of high performance Hewlett Packard color graphics UNIX workstations and XP workstations, along with extensive commercial and public domain software, support the full range of engineering college classes. The college provides the same type of computer hardware and software that students will use when they graduate and begin working as engineers. CSS updates hardware and software regularly to maintain the best educational environment.

Engineering and other students who take engineering courses are provided with an engineering computing account, which they keep during their tenure at the college. This account provides students with electronic mail and access to the Internet. The college’s computer labs provide students with more than 300 networked computers, and labs at the Seamans Center are open 24 hours per day. CSS provides support for student computing.

Engineering Design and Prototyping Center

The Engineering Design and Prototyping Center (EDPC) provides state-of-the-art technical resources to University and to private sector research and development groups for concept development, project design, full service machining, and rapid prototype modeling.

Engineering Electronics Shop

A full service electronics support facility for the Engineering College provides design, construction, repair, calibration, and preventive maintenance services for both teaching and research laboratories. There also is an extensive electronics parts supply store and PC board facility for engineering students and researchers.

Research Units

IIHR—Hydroscience and Engineering

IIHR—Hydroscience and Engineering (formerly the Iowa Institute of Hydraulic Research) is one of the nation’s premier and oldest fluids research and engineering laboratories. Its activities encompass the broad spectrum of fluid mechanics, engineering and environmental hydraulics, and hydrometeorology.

Basic and applied engineering research programs are carried out at IIHR in nine modern, well-equipped laboratories. IIHR conducts teaching and research programs in fluid mechanics (turbulent shear flows, vortex dynamics, ship hydrodynamics, biofluid dynamics, and computational fluid dynamics); environmental hydraulics (river hydraulics, computational hydraulics, hydraulic structures, bioremediation, water quality dynamics, air-water exchange processes, ice-related river hydraulics, winter highway maintenance, and ice modeling); water and air resources (hydrometeorology, hydroclimatology, hydrogeology, hydrology, remote sensing and water resources); and history of hydraulics and fluid mechanics.

IIHR maintains state-of-the-art research facilities, including a large low-turbulence wind tunnel, a vortex dynamics laboratory, a ship-model towing tank, extensive energy balance equipment, and radiometric and meteorological stations. It also has specialized equipment, such as a three-dimensional scanning elastic lidar, a differential absorption lidar, particle image velocimetry (PIV) and laser Doppler velocimetry (LDV) systems, and state-of-the-art computer resources.

IIHR has constructed a new research and education facility on the Mississippi River near Muscatine, Iowa. The Lucille A. Carver Mississippi Riverside Environmental Research Station provides opportunities for researchers and educators from around the world to study river processes in a multidisciplinary setting. The research station’s state-of-the-art facilities support study of diverse facets of the Upper Mississippi River and promote a better understanding of river ecosystems and their response to natural events and human activities.

High-level involvement of graduate students is a hallmark of most IIHR projects. IIHR is heavily involved in fluids engineering for industry and in fundamental research programs, providing graduate students and postdoctoral trainees with unique opportunities for valuable research and engineering experience. Undergraduates also have opportunities to participate in IIHR projects.

For additional information about IIHR—Hydroscience and Engineering, see “Centers and Institutes” on the college’s web site.

Center for Computer-Aided Design

The Center for Computer-Aided Design is a research unit of the College of Engineering dedicated to the advancement and practical implementation of research in modeling and simulation. The unit promotes multidisciplinary research, scholarship, and technology transfer with applications in design and optimization, kinematics and dynamics, human factors, and solid mechanics.

Among the technology applications currently under investigation at the center are meshfree methods for structural analysis and design sensitivity analysis, composite materials, probabilistic mechanics and reliability, reliability-based design optimization, topology optimization, multidisciplinary design optimization, advanced geometric modeling and CAD, human interaction with advanced technology and automation, human computer interaction and virtual reality, computational modeling of human performance, mechanisms and robotics, and real-time dynamic simulation for haptic interfaces. CCAD research activities promote individual and multidisciplinary approaches to design and engineering analysis, engaging research participants from a variety of academic fields and interests.

Twelve faculty members are currently affiliated with CCAD, representing the Departments of Civil and Environmental Engineering, Mechanical and Industrial Engineering, and Mathematics. Because of the interdisciplinary nature of the research, these faculty members supervise more than 50 graduate and undergraduate students. CCAD also employs 10 full-time professional staff members and three postdoctoral research scholars.

CCAD maintains a variety of high-performance computer systems. Its primary computing resources include 30 workstations categorized as advanced computing workstations, 15 workstations categorized as high-performance computing workstations, and 450 workstations categorized as general research computing workstations.
The center, a unique collaboration between the College of Engineering and the Carver College of Medicine, involves teams of investigators that include engineers, economists, surgeons, research scientists, nurses, therapists, and students.

**Course Numbering System**

The title of each course offered by the College of Engineering is preceded by a three-digit prefix and a three-digit suffix separated by a colon.

The second digit of the prefix is 5, which identifies the course as one offered by the College of Engineering.

The third digit of the prefix identifies the engineering core courses or the courses offered by each program as follows:

- 051—Biomedical engineering
- 052—Chemical and biochemical engineering
- 053—Civil and environmental engineering
- 055—Electrical and computer engineering
- 056—Industrial engineering
- 057—Engineering core (old curricula)
- 058—Mechanical engineering
- 059—Core engineering (new curricula)

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 undergraduates, numbers 100 to 199 designate courses for undergraduates and graduates, and numbers 200 and above designate courses primarily for graduates.

The courses offered by each department are listed in the department's section by discipline area, starting with the lowest-level course and proceeding to the highest-level course.

A brief description is included for each course. The prerequisites and corequisites listed in each course description are given in terms of the prefix and suffix numbers of the courses offered at this university. Students who do not meet these requirements but who have earned credit in equivalent course work from another institution should consult the course instructor if they have questions concerning their preparation for the course. They must obtain the instructor's consent before registering for the course.

Engineering students may enroll in any course in the College of Engineering if they meet the course prerequisite and corequisite requirements. Undergraduates from other colleges may enroll in engineering courses only with consent of the college's director of admissions and outreach.

Consent for enrollment in an engineering course is based on space available as well as on whether the students have the mathematics, science, and engineering background considered necessary to undertake the course work.

**Courses**

**Engineering Core**

The college's individual undergraduate programs are detailed in the College of Engineering departmental sections of the Catalog. Each program builds upon a core program (see "Undergraduate Curriculum" in this section of the Catalog). The following core program courses are offered through the College of Engineering.

Not all of the following engineering core courses are required for each engineering major. Course requirements for specific majors are provided in the appropriate departmental sections.

Undergraduates from other colleges cannot register for core program courses without special permission from the college's director of admissions and outreach.

**057:000 Cooperative Education Training**

**Assignment: Engineering** 0 s.h.

For engineering majors participating in the Cooperative Education and Internship Program. Prerequisite: consent of college's internship and co-op director.

**057:001 Engineering Honors Seminar** 0 s.h.

Repeatable. Prerequisites: admission to College of Engineering Honors Program and sophomore standing.

**057:010 Dynamics** 3 s.h.

Vector calculus, Newton's laws, 3-D motion of particles and multiparticle systems, 2-D motion of rigid bodies applications. Prerequisites: 22M:031 and 059:007.

**057:015 Materials Science** 3 s.h.

Concepts and examples of selection and applications of materials used by engineers; mechanical, electrical, and thermal properties that govern a material's suitability for particular applications; lectures supplemented by laboratory experiments. Prerequisite: 040:011. Corequisite: 22M:031.

**057:017 Computers in Engineering** 3 s.h.

Introduction to digital systems and engineering applications of microprocessor-based computers, C programming language, serial and parallel I/O, analog-to-digital and digital-to-analog conversion, system control using polling and interrupts; lab arranged. Prerequisites: 059:006 and sophomore standing.

**057:018 Principles of Electronic Instrumentation** 4 s.h.

Principles of analog signal amplification, signal conditioning, filtering, operational amplifier circuit analysis and design; principles of operation of diodes, bipolar transistors, field effect transistors; discrete transistor amplifier analysis and design; laboratory included. Prerequisites: 029:082 and 059:008.

**057:019 Mechanics of Deformable Bodies** 3 s.h.

Elementary theory of deformable bodies, stress, strain; axial, transverse, bending, torsion, combined bending and torsion, deflection of beams. Prerequisite: 059:007. Corequisite: 22M:034.

**057:020 Fluid Mechanics** 4 s.h.

Fluid properties; hydrostatics; transfer of mass, momentum, and energy in control-volume and differential forms; dimensional analysis and similarity; laminar and turbulent flow in conduits; flow past bluff bodies and airfoils; engineering applications; experimental laboratories, computer simulation projects. Prerequisites: 22M:037 and 057:010. Corequisite: 059:009.

**057:085 Program for Enhanced Design Experience** 3 s.h.

Group design projects in collaboration with industrial partners; emphasis on synthesis, written and oral communication, ethics. Prerequisite: consent of instructor.

**Core Engineering**

**059:004 Essentials of Technical Communication** 2 s.h.

Engineering as a real-world community of engineers working to increase their competence and confidence in the basic forms of technical communication.

**059:005 Engineering Problem Solving I** 3 s.h.

Development and demonstration of specific problem solving skills; directed project or case study involving actual engineering problems and their solutions.

**059:006 Engineering Problem Solving II** 3 s.h.

Engineering problem solving using computers; introduction to digital computations, problem formulation using a procedural
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high-level language; structured, top-down program design methodology; debugging and testing; introduction to use of software libraries; examples from numerical analysis and contemporary applications in engineering. Corequisite: 22M:031.

059:007 Engineering Fundamentals I: Statics 2 s.h.
Vector algebra, forces, couples, moments, resultants of force couple systems; fixtures, equilibrium analysis of particles and finite bodies, centroids; applications. Prerequisite: 22M:031. Corequisite: 029:081.

059:008 Engineering Fundamentals II: Electrical Circuits 3 s.h.
Kirchhoff’s laws and network theorems; analysis of DC circuits; first order transient response; sinusoidal steady-state analysis; elementary principles of circuit design; laboratory experience with DC, AC, and transient circuits. Corequisites: 22M:034 and 029:082.

059:009 Engineering Fundamentals III: Thermodynamics 3 s.h.
Basic elements of classical thermodynamics, including first and second laws, properties of pure materials, ideal gas law, reversibility and irreversibility, and Carnot cycle; control volume analysis of closed simple systems and open systems at steady state; engineering applications, including cyclic, psychrometrics. Prerequisites: 004:011, 22M:031, and 029:081.

059:090 First-Year Engineering Seminar 0 s.h.
Introduction to engineering student life; electronic resources, keys to and skills for success; coping with adversity; selecting a major; advising responsibilities; curriculum choices and career objectives; ethics; communities, internships and co-ops, job search skills. Prerequisite: first-semester standing.

BIOMEDICAL ENGINEERING

Chair: Krishnan B. Chandran
Associate professors: Tadao Satomi
Adjunct assistant professors: Firenze Ianzini, Sanford L. Meeks, Joel Pickar
Assistant professors: Terry A. Braun, Nicole Grossland, Khalid Kader, Oguo Poroy, Madhavan L. Raghavan, John C. Rosecrance, Todd Scheetz
Adjunct lecturers: Lisa Scranton
Undergraduate degree: B.S.E. in Biomedical Engineering
Graduate degrees: M.S., Ph.D. in Biomedical Engineering
Web site: http://bme.engineering.uiowa.edu/

that attracts outstanding students at both the undergraduate and graduate levels; conduct high-quality research that enables faculty members and students to keep pace with and initiate new developments; and serve government, industry, and institutions worldwide by making the department’s facilities and faculty expertise accessible.

Several engineering faculty members have joint appointments in the Carver College of Medicine. Both biomedical engineering undergraduates and graduate students participate actively with college faculty members and their colleagues in the life and health sciences on projects of mutual interest.

Undergraduate Program

The undergraduate program in biomedical engineering provides a contemporary education in a multidisciplinary area. The program’s objective is to produce graduates who:

• have the ability to identify, formulate, and solve open-ended problems with medical relevance, including the design of devices, systems, and processes to improve human health;

• are able to pursue a wide range of career options, including those in industry, academia, and medicine; and

• are able to advance to leadership positions in their chosen field.

Students who complete the program may pursue traditional career opportunities in industry, such as those rooted in mechanical or electrical engineering disciplines, or they may pursue newer areas of engineering, such as design and development of biomedical instrumentation, diagnostic aids, life-support systems, prosthetic and orthotic devices, and man-machine systems. Other career options are available in government (Food and Drug Administration, Environmental Protection Agency, National Institutes of Health, Veterans Affairs). Some biomedical engineering graduates elect to continue formal education in engineering, medicine, or law.

Bachelor of Science in Engineering

The College of Engineering adopted new undergraduate program curricula effective for all new students beginning fall semester 2002. The new curricula are described in this Catalog. Students who began their engineering studies before fall semester 2002 may continue to follow the old curricula (described in pre-2002 editions of the Catalog, existing program curriculum sheets, and degree evaluation forms), with possible course substitutions. They also may choose to change to the new curricula under conditions defined by each program and available from the college’s Student Development Center.

The biomedical engineering curriculum is built on the foundation provided by the College of Engineering core curriculum. It prepares students for the challenges and opportunities associated with careers in the biomedical engineering profession. The program has been designed carefully to enable students to satisfy the entrance requirements of the Graduate College and, with the selection of a three-course sequence in organic chemistry in the elective courses, the Carver College of Medicine, the College of Dentistry, or the allied health sciences. The B.S.E. in biomedical engineering requires a minimum of 128 s.h. of credit. The curriculum covers four major stems: mathematics and basic sciences, engineering topics, elective focus area, and general education (15 s.h. of humanities and social science courses). Also required are the background courses Engineering Problem Solving I-I and Accelerated Rhetoric.

Some courses in the curriculum are prerequisites to others. Students who take courses in the following order satisfy the prerequisite requirements automatically. Students who do not follow this sequence still must satisfy all course prerequisites.

General education component courses must be selected to satisfy the requirements of the College of Engineering. See “General Education Component” in the College of Engineering introductory section of the Catalog. Elective focus area courses must be selected according to guidelines established by the Department of Biomedical Engineering. See “Elective Focus Area” following the curriculum list.

FIRST YEAR

First Semester

004:011 Principles of Chemistry I 4 s.h.
010:003 Accelerated Rhetoric (or 010:001-010:002) 4 s.h.
22M:031 Engineering Mathematics I: Single Variable Calculus 4 s.h.
051:090 BME Freshmen/Sophomore Forum 0 s.h.
059:005 Engineering Problem Solving I 3 s.h.

Second Semester

004:012 Principles of Chemistry II 4 s.h.
22M:032 Engineering Mathematics II: Multivariable Calculus 4 s.h.
22M:033 Engineering Mathematics III: Matrix Algebra 2 s.h.
029:081 Introductory Physics I 4 s.h.
051:090 BME Freshmen/Sophomore Forum 0 s.h.
059:006 Engineering Problem Solving II 3 s.h.

SECOND YEAR

First Semester

002:010 Principles of Biology I 4 s.h.
22M:034 Engineering Mathematics IV: Differential Equations 3 s.h.
051:091 Professional Seminar: Biomedical Engineering 0 s.h.
059:007 Engineering Fundamentals I: Statics 2 s.h.
059:008 Engineering Fundamentals II: Electrical Circuits 3 s.h.
059:009 Engineering Fundamentals III: Thermodynamics 3 s.h.
Completion of at least 80 s.h.; a cumulative g.p.a. of at least 3.50; and a letter of application, submitted to the Department of Biomedical Engineering, stating the intended area of specialization and the name of the M.S. adviser.

Students in the fast-track B.S./M.S. program receive a B.S. in biomedical engineering once they have completed all of the requirements for the B.S. degree. They normally complete the required course work for the M.S. program one year later.

**Graduate Programs**

The aim of graduate study at both the M.S. and Ph.D. levels is to educate students in the disciplines of biomedical engineering more deeply and broadly than is possible at the B.S. level. The goal is to enable students to use contemporary methods at an advanced level during a professional career in engineering design, development, and research.

Each student's course of study is based on individual background and career objectives, and sound academic practice. Department faculty members have teaching and research expertise in areas related to cardiovascular and fluid biomechanics, musculoskeletal biomechanics, biomaterials and tissue engineering, bioinstrumentation, biosystems, biomedical imaging, biological signal analysis, bioinformatics and computational biology, and other allied fields.

An individual program for each student may be developed from courses offered by the biomedical engineering department and other departments, especially mechanical engineering, electrical engineering, physiology, mathematics, and biological sciences. M.S. students who want a more general program may combine emphases, while those who want some specialization in any previously described areas through the choice of departmental courses and appropriate electives.

**Master of Science**

The M.S. in biomedical engineering requires a minimum of 30 s.h. of course work and research. Students may choose either a thesis or nonthesis program; the latter must include at least 6 s.h. of 200-level courses. Students who choose the thesis program may count no more than 6 s.h. of credit for thesis research and writing toward satisfying the 30 s.h. limit. Either program may yield a terminal degree or an intermediate step toward a Ph.D.

A tentative plan of study for each student is determined through consultation with an adviser. An M.S. committee of at least three graduate faculty members, including at least two on the biomedical engineering faculty, is appointed by the dean of the Graduate College. The student's plan of study is reviewed by the committee before the student has completed 18 s.h. of course work. The plan of study then is submitted for review to the department chair.

To earn the M.S., students are required to attain a g.p.a. of at least 3.00 on a minimum of 30 s.h. of graduate work and successfully complete the final examination administered by their committee.

The requirements for the M.S. may be completed in one calendar year. However, students with assistantship duties and/or other constraints may need up to two calendar years to complete the degree.

Candidates for the M.S. (thesis or nonthesis) must complete the following courses or their equivalents with a grade of B or higher.

- Advanced mathematics
  - Human physiology (027:130)

Individual study plans should provide for as much advanced work as individual aptitude and previous preparation permit.

**Doctor of Philosophy**

The doctoral program requires a minimum of 72 s.h. of graduate work, including acceptable transfer credits. At least 42 s.h. must be in formal course work taken after the B.S. is awarded, and at least 12 s.h. must be in research and thesis credits. For students entering with an M.S., at least 18 s.h. of formal course work must be completed beyond the M.S., and at least 12 s.h. must be credit for research and thesis. Based on research progress, examination results, or other measures, the student’s graduate committee may require additional formal course work to strengthen perceived areas of weakness.

**Admission**

Admission to the Ph.D. program is conditional until students successfully complete a qualifying examination, which is administered by the biomedical engineering faculty. The decision on whether the student’s performance on this
examination is adequate for admission to the Ph.D. program is made by the biomedical engineering faculty.

Admission to Ph.D. candidacy requires a g.p.a. of at least 3.25 on all graduate work done at the University of Iowa. Upon completion of the course work specified in the plan of study and with the required grade-point average and the adviser's recommendation, students are admitted to the comprehensive examination by their committee.

Having satisfactorily completed these examinations, students usually have only to complete and defend their dissertation at the final examination. Requirements for the Ph.D. generally can be completed in about three years beyond the master's degree.

Financial Support

Students qualified for graduate study are encouraged to apply for fellowships and assistantships. Direct inquiries should be made to the department chair.

Special Facilities and Laboratories

Required Undergraduate Laboratories

There are four dedicated undergraduate teaching laboratories associated with the required and elective courses in biomedical engineering: Biomechanics Laboratory, Biomaterials and Tissue Engineering Laboratory, Biomeasurements and Systems Laboratory, and Biomedical Imaging Laboratory.

BIOMECHANICS

The Biomechanics Laboratory is equipped to perform experiments in biological flow analysis and in human musculoskeletal systems. The laboratory houses a pulse duplicator for simulating physiological pulsatile flow, a flow visualization set-up to analyze flow past stenosis and aneurysms, blood pressure and flow measurement devices, digital still and video cameras for kinematic analysis, a ski binding tester, a drop tower for impact testing, a four-channel EMG amplifier system, and a table-top material testing machine. The laboratory is used for 051:050 Biomechanics, elective courses in cardiovascular and skeletal biomechanics, other elective courses, senior design projects, and demonstrations in 051:030 BME Fundamentals.

BIOMATERIALS AND TISSUE ENGINEERING

The Biomaterials and Tissue Engineering Laboratory is equipped to test mechanical and thermal properties of biomaterials, thin sectioning of hard tissues, and prostheses for histology. It also is equipped for basic tissue engineering experiments. The laboratory is used for 051:070 Biomaterials I, elective courses in biotransport processes, biomaterials, and tissue engineering; senior design projects; and demonstrations in 051:030 BME Fundamentals.

BIOMEASUREMENTS AND BIOSYSTEMS

The Biomeasurements and Biosystems Laboratory is equipped for measuring biomedical variables of clinical and physiological interest, designing and building electronic instrumentation, and conducting modeling experiments in physiology. It is used for 051:040 Biological Systems Analysis I and 051:080 Bioelectrical Design, elective courses in biomeasurements and biological systems analysis, senior design projects, and demonstrations in 051:030 BME Fundamentals.

BIOMATERIALS LABORATORY

The Biomaterials Laboratory is equipped to characterize implant materials and biological tissues for their mechanical and thermal properties. Hard tissue histological slide preparations, for both microtomograph and optical, can be made for the study of interactions between bone and implant interactions. Metallographic sample preparations can be made and analyzed under optical microscopes. The laboratory contains MTS (model 812) materials testing machine with recorder and controller; automatic data acquisition and process computer dedicated to the MTS machine; differential scanning calorimeter (Perkin-Elmer DSC-4 model); Omega x-ray generator with microradiographic attachment; Brunow thin sectioning saw; Buehler Isomet thin sectioning saw; Buehler metallographic and petrographic grinding and polishing wheels; IR, polarizing, differential scanning calorimeter (Perkin-Elmer DSC-4 model); Omega x-ray generator with microradiographic attachment; Brunow thin sectioning saw; Buehler Isomet thin sectioning saw; Buehler metallographic and petrographic grinding and polishing wheels; IR, polarizing, reflections research type microscopes; temperature-controlled bath; Lindberg tube furnace; strain gage attachment and measurement devices; videotape and play equipment; and conventional and vacuum oven with a diffusion pump.

BIOMECHANICS LABORATORY

This laboratory is equipped for investigation of the biomechanics of the spine, particularly head and neck trauma and problems related to low back pain. For example, the Selspot II system, a high-speed movie camera and photographic visualization equipment also reside in the lab. Capabilities of the laboratory include heart valve pulsatile function resting, contraction bubble visualization and analysis, laser Doppler velocity measurement, and qualitative flow visualization.

IMAGE PROCESSING LABORATORY

This laboratory is equipped to perform the sophisticated image processing procedures required for varied investigations. Its equipment centers around a cluster of workstations, a video graphics coprocessor device, that is used as a densitometer, and various other peripherals. The cluster is connected to the University-wide broadband communications system through which data can be transferred from ICAEN, all Academic Computing machines, all hospital computers, and off-campus computers (such as the national supercomputer system). Many investigators use this facility to analyze cardiac images obtained from cine-CT or ultrasound, and for cross-section of human spines, dental specimens, and so forth.

ORTHOPAEDIC BIOMECHANICS LABORATORY

This laboratory occupies 20 rooms on the ground floor of Westlawn. It is configured primarily for macroscopic level physical testing of musculoskeletal constructs (e.g., bones, articular joints, orthopaedic implants) and for corresponding computational modeling. The physical testing area includes a multipurpose wet lab, a multipurpose dry lab, a surgical preparation room, a mechanical testing room, a machine shop, and a specimen storage area. The computational modeling area is arranged around eight separate workstation seats in two adjoining partially partitioned areas. Adjacent to these core operational areas are offices for faculty, research staff, students, and fellows; a secretarial/reception area; a conference room; and a library.

BIOINFORMATICS AND COMPUTATIONAL BIOLOGY LABORATORY

This recently remodeled facility is wired for high-speed networking (10- and 100-megabit gigabit ethernet, hardwired and wireless, and ATM). It includes five dedicated Linux clusters, 126 computing systems, 178 CPUs, more than 100 gigabytes of RAM, and 2.5 terabytes of disk space. Computer resources include a dedicated computer server cluster of 18 Linux systems (36 CPUs) connected with a dedicated, switched, copper Gigabit Ethernet intranet—18 Dual AMD MP 2400 (2.2 GHz, 2 GB memory, 40 GB disk each); second dedicated computer server cluster of 16 Linux systems (32 CPUs) connected with a dedicated, switched, fiber-optic Gigabit Ethernet intranet—12 Dual Pentium III (500 MHz, 1 GB memory, 9 GB disk each); and four Dual Pentium III (500 MHz, 2 GB memory, 9 GB disk each); and third dedicated computer cluster of nine Linux systems (18 CPUs) connected with a dedicated 2.4 GB multistage intranet—eight...
Dual Pentium III (866 MHz, 5 GB memory, 45 GB disk each), and one Dual Pentium III (866 MHz, 1 GB memory, 45 GB disk each). There are two additional clusters: an 8-node cluster of Pentium II class machines, and a 12-system heterogeneous cluster of various SUNs, HPs, and SGI; four dedicated, dual fiber channel, redundant disk storage systems (RAID) 412 GB usable each. There are an additional 78 computers used as compute servers, web servers, database servers, file servers, workstations, laptops, and other developmental and experimental needs.

**IOWA SPINE RESEARCH CENTER BIOMECHANICS LABORATORY**

The spine biomechanics laboratory is fully equipped to perform studies of tissue and/or specimen response to mechanical loads. An MTS Bionic machine (extended columns) servohydraulic testing machine permits application of uniaxial tension or compression in concert with axial torsion under displacement (rotation) or load control. In addition, the laboratory has a large base plate with 16 slots, grips, an environmental chamber, and an independent controller with specialized test control and data acquisition and analysis routines.

An apparatus for testing spinal motion segments for their balance point and buckling behaviors also is available.

**TISSUE ENGINEERING LABORATORY**

The Tissue Engineering Laboratory has recently been outfitted with a fume hood, sink, laboratory counters, tables, and major tissue culture equipment, including a Baker SG3 laminar flow hood, a NuAir water-jacket incubator, an autoclave, a vacuum pump, a Zeiss Axiosvert S-100 phase contrast and bright field microscope with a computer interface, computer-controlled peristaltic pumps, a computer-controlled water bath, and a refrigerated and freezer.

The inverted microscope has an image capture system interfaced to a computer workstation with image processing software. A variety of sensors for performing temperature, pressure, and flow measurements also are available. The laboratory’s computers are equipped with software for graphical, numerical, image analysis, word processing, and symbolic computation. Liquid nitrogen dewars, and CO2 and N2 tanks have been installed. An Using chamber with electrodes and a high impedance Keithley electrometer also are available.

**LARGE-SCALE DIGITAL CELL ANALYSIS LABORATORY**

This laboratory is involved in the continuing development of the large-scale digital cell analysis system (LSDCAS) and in developing model-based approaches towards problems of general biological interest. The facilities include Real-Time Cell Analysis Laboratory, in the Seamans Center, with 10 Linux workstations, a Power Mac, printers, and scanners; and Real-Time Cell Analysis Data Center, also in the Seamans Center, with two Itanium servers (36 GB RAM/144 GB RAID storage), a fiber channel RAID storage system (2 terabytes), two dual-Pentium servers (2 MB RAM/36 GB disk storage), dual 30 and 240 volt uninterruptible power supplies, 30-slot DLT tape library, fiber channel switch, fiber channel/SCI bridge, rack-mount monitor/keyboards, and KVM switch.

The Real-Time Cell Analysis Facility at Medicine, in the Medical Education and Research Facility, has a LSDCAS system consisting of three automated microscope systems capable of performing real-time single-cell analysis experiments, located in a dedicated darkroom to regulate illumination conditions. Each microscope system is controlled by a microcomputer interfaced to a digital camera and a microscope controller. This facility also includes a small tissue culture support laboratory containing a cell incubator, and access to tissue culture hoods, freezers, refrigerators, and other equipment. The Biomedical Research Laboratory, in the Medical Education Building, has a tissue culture hood, dual-chamber incubator, Coulter cell counter, protein and nucleic acid gel electrophoresis work area, and battery-operated refrigerators, freezers, and a variety of tools used for biochemistry, cell biology, and molecular biology.

**Courses**

**Special Topics**

051:000 Cooperative Education Training Assignment: Biomedical Engineering 0 s.h.

Biomedical engineering students participating in the Cooperative Education Program register for this course during work assignment periods; registration provides a record of participation in the program on the student’s permanent record. Prerequisites: admission to Cooperative Education Program and consent of faculty adviser.

051:030 BME Fundamentals 2 s.h.


051:040 Biological Systems Analysis I 3 s.h.

Application of principles of linear system (control) theory to analysis of biological systems; development of computer simulation techniques to study dynamic response of physiological systems. Offered fall semesters. Prerequisites: 228:034, 059:006, and 072:154.

051:060 Fundamentals of Biomedical Imaging 3 s.h.

Fundamentals of medical imaging science and engineering; the physics of ultrasound, X-ray, and magnetic resonance; reconstruction of CT and MR images; processing and analysis of medical images. Repeatable. Prerequisites: 099:082, 099:066, 072:154, and computer programming skills. Corequisites: 051:090 and 057:017.

051:080 Bioelectrical Design 3 s.h.

Principles of electronic instrumentation, biosignal measurement, and electrical and electronic device design for biomedical engineering; theory introduced in class applied in laboratory experience designing devices for taking measurements of living systems. Prerequisites: 051:040 and 059:008.

051:083 Biomechanical Design 3 s.h.

Principles skeletal and cardiovascular implant design; selection of material, stress and functional analysis, failure criteria, fatigue analysis, and optimal design; case study of biomechanical designs, computer-aided design methods, design of subsystems, product liability. Prerequisites: 051:050 and 057:019.

051:085 Biomedical Engineering Senior Design I 4 s.h.

Individual or group design project involving current problems in biomedical engineering; interdisciplinary projects involving biomedical engineering and health sciences faculty members; first semester of a year-long senior capstone design project. Prerequisites: 051:080, 051:083, and senior standing.

051:086 Biomedical Engineering Senior Design II 4 s.h.

Second semester of a year-long senior capstone design project begun in 051:085. Prerequisites: 051:085 and senior standing.

051:400 BME Freshmen/Sophomore Forum 0 s.h.

Presentations by faculty, graduate students, collaborators from the Colleges of Medicine, Dentistry, Law, may include visits to laboratories and industries.

051:091 Professional Seminar: Biomedical Engineering 0 s.h.

Professional aspects of biomedical engineering presented through lectures and discussions by guest speakers, field trips, films, panel discussions. Repeatable. Prerequisite: sophomore or higher standing.

051:092 Leadership and Resourcefulness 0 s.h.

Development of leadership skills and resourcefulness for real-world professional work and life. Repeatable. Prerequisite: completion of six semesters of 051:090 and 051:091 combined.

051:098 Individual Investigations: Biomedical Engineering 0 s.h.

Individual projects for biomedical engineering undergraduate students; such as laboratory study, engineering design projects, and patient simulation. Prerequisites: 051:080, 051:083, and senior standing. Prerequisite: consent of instructor.

051:121 Introduction to Bioinformatics 4 s.h.

Overview of bioinformatics and genome science including genome projects, functional genomics, phylogenetics, proteomics, microarrays, DNA polymorphism, data mining algorithms, computer-aided design methods and analytical approaches. Prerequisites: consent of instructor. Same as 002:169, 055:121.

051:122 Computational Genomics 3 s.h.


051:123 Bioinformatics Techniques 3 s.h.

Tools and techniques relevant to bioinformatics and genomics with theoretical and design issues; genetics, algorithms, Perl, bio-Perl, XML, databases, datamining, systems software.

051:130 Introduction to Genetics and Quantitative Physiology 1 s.h.

Genetics and quantitative physiology in visceral organs and the musculoskeletal system. Corequisite: 027:130.

051:178 Fast-Track Biomedical Engineering Design I 4 s.h.

First semester of year-long senior capstone design project, individual or group design project involving biomedical engineering problems. Prerequisites: 051:080, 051:083, and senior standing.

051:179 Fast-Track Biomedical Engineering Design II 4 s.h.

Second semester of year-long senior capstone design project begun in 051:178. Prerequisites: 051:178 and senior standing.

**Biomaterials**

051:070 Biomaterials I 3 s.h.


051:170 Graduate Biomaterials 3 s.h.


051:172 Polymers as Biomaterials 3 s.h.

Structure-property relationships and in vivo and in vitro performances of polymers used to manufacture implants and other devices. Prerequisite: 051:070 or equivalent.

051:173 Metals as Biomaterials 3 s.h.

Property-structure relationships of metals used to fabricate implant materials, their interactions in vivo. Prerequisite: 051:070 or equivalent.

051:174 Ceramics and Glasses as Biomaterials 3 s.h.

Property-structure relationships of ceramics and glasses used to fabricate implant materials, their interactions in vivo. Prerequisite: 051:070 or equivalent.
051:175 Tissue Engineering 3 s.h.
Principles of tissue engineering, cellular/matrix interactions, cellular scaffolding, material design for tissue-engineered devices, genetic engineering for tissue engineering, in vitro and in vivo models.

051:176 Biomaterials Laboratory 3 s.h.
Practical experience in design, fabrication, and testing of biomaterials and devices for biomedical testing, tissue response, design to optimize response. Basic understanding of materials required. Prerequisite: 051:070.

051:177 Composite Materials 3 s.h.
Same as 053:117, 058:170.

051:248 Elasticity in Solids 3 s.h.
Same as 054:248, 058:271.

051:261 Cellular Systems Modeling 3 s.h.
Computer programming techniques for designing and implementing realistic mathematical models of biological phenomena. Prerequisite: graduate standing.

Bioengineering 620

051:050 Biomechanics 3 s.h.
Principles of solid and fluid mechanics applied to analytical and experimental investigation of cardiovascular and skeletal systems. Prerequisites: 226:034, 057:019, and 072:154.

051:149 Graduate Biomechanics 3 s.h.
Understanding the human body from an engineering mechanics perspective; challenges of applying engineering principles to living systems, illustrated through real-world examples. Repeatable. Prerequisite: 057:019.

051:150 Musculoskeletal Biomechanics 3 s.h.
Principles of solid mechanics applied to analytical, experimental investigation of biological systems; emphasis on applications in kinematics of human musculoskeletal system. Prerequisites: 051:019 and graduate standing. Corequisite: 072:154.

051:151 Intermediate Mechanics of Deformable Bodies 3 s.h.
Application of equilibrium analysis, strain-displacement relations, constitutive relationships, numerical structural systems and elementary plane elasticity problems. Offered fall semesters. Prerequisite: 057:019. Same as 051:140, 058:150.

051:152 Ergonomics of Occupational Injuries 3 s.h.
Epidemiology, surveillance systems, ergonomics, biomechanics, gait, psychology, legal aspects, and cost control. Prerequisite: 051:050 or 051:150.

051:154 Cardiac and Vascular Mechanics 3 s.h.
Bio-solid mechanics of the cardiovascular system; mechanical properties of venous valves, arteries, and blood vessels; their normal function, how they are affected by disease states; design of artificial organs, prostheses. Prerequisite: 057:019.

051:155 Cardiovascular Fluid Mechanics 3 s.h.

051:157 Musculoskeletal Tissue Mechanics 3 s.h.
Biomechanical characterization of bone, cartilage, and tendon/ligament at the tissue level, with applications to lower and upper limb, spine, dental, and craniofacial structures. Repeatable. Prerequisites: 051:050 and 051:151.

051:158 Biomechanics of Orthopaedic Implants 3 s.h.
Design and function of hip, knee, ankle, shoulder, elbow, and wrist replacements and of fracture stabilization devices; fixation modalties, stress analysis, tissue adaptation, failure mechanisms. Prerequisites: 051:050, 057:019, 059:007, and 059:008.

051:253 Spine Mechanics 3 s.h.
Biomechanics applied to mechanics of the human spine; clinical aspects; state-of-the-art in spine research; basic engineering principles for biomechanical analysis. Prerequisite: 051:150.

051:254 Advanced Vascular Mechanics 3 s.h.
Topics in vascular solid mechanics; study of vascular tissue from theoretical (constructive modeling), experimental, and computational perspectives. Prerequisite: 051:154.

Bioelectrical Engineering 051:140 Biological Systems Analysis II 3 s.h.
Application of principles of linear system (control) theory to analysis of biological systems; development of computer simulation techniques to study dynamic response of physiological systems. Prerequisite: graduate standing. Corequisite: 072:154.

051:160 Transport Phenomena in Biomedical Engineering 3 s.h.
Same as 052:271.

051:161 Graduate Biomedical Imaging 3 s.h.
Imaging and signals, fundamentals; physics of ultrasound, x-ray, and magnetic resonance; reconstruction of CT and MR images; processing and analysis of medical images. Repeatable. Prerequisite: 072:154 or equivalent. Corequisite: 051:141.

051:181 Graduate Biomedical Measurements I 3 s.h.
Design, development, utilization of contemporary electronic instrumentation for measuring biomedical variables of clinical and research interest. Prerequisite: a basic electronics course and graduate standing. Corequisite: 072:154.

051:182 Biomedical Signal Processing 4 s.h.
Application of signal processing methods (e.g., Fourier, Laplace, z-transforms) to biomedical problems, such as analysis of cardiac signals, circadian rhythm, the breathing cycle; computer simulation lab. Prerequisite: 051:080.

051:185 Physics and Analysis of Biomedical Images I 3 s.h.
Introduction to the analysis of medical images with physical concepts of electromagnetic waves, visual perception, electromagnetic properties of tissues, medical imaging modalities. Prerequisites: 051:040 or 051:141 or equivalent; 226:032 or 051:060 or equivalent; and 057:017 or equivalent.

051:186 Physics and Analysis of Biomedical Images II 3 s.h.
Physics and analysis of biomedical non-ionizing images; ultrasound, MRI, and so forth; temporal and spatial analysis, image segmentation, shape analysis, pattern recognition, parametric representation, texture analysis, limits of information content. Prerequisite: 051:185.

051:187 Health Informatics I 3 s.h.

051:188 Imaging Practicum 3 s.h.
Real-world problems in medical imaging; team approach leading to publication in scientific literature. Prerequisite: 051:060 or 051:185 or 051:186 or equivalent.

051:189 Health Informatics II 3 s.h.

051:286 Contemporary Topics in Medical Imaging 3 s.h.
Advanced image processing algorithms applied to analysis of medical images; image segmentation (level sets, watershed, active contours) and image registration (mutual information, Thirion contours) and image registration (mutual information, Thirion). Prerequisite: 051:185.

051:287 Insight into Images 3 s.h.
Principles of tissue engineering; cell/material interactions, cellular analysis of biological systems; development of computer simulation techniques to study dynamic response of physiological systems. Prerequisite: graduate standing. Corequisite: 072:154.

051:191 Seminar in Biomedical Engineering 0 s.h.
Presentation of recent advances in biomedical engineering. Prerequisite: graduate standing.

051:198 Individual Investigations: Biomedical Engineering 4 s.h.
Individual projects for biomedical engineering graduate students, such as laboratory study, engineering design project, analysis and simulation of an engineering system, computer software development, research. Prerequisites: graduate standing and consent of advisor.

051:199 Research: Biomedical Engineering M.S. Thesis 6 s.h.
Experimental and/or analytical investigation of an approved topic for partial fulfillment of the requirements for the M.S. with thesis in biomedical engineering. Prerequisite: consent of advisor.

Biomedical Engineering 051:191 Seminar in Biomedical Engineering 0 s.h.
Presentation of recent advances in biomedical engineering. Prerequisite: graduate standing.

051:198 Individual Investigations: Biomedical Engineering 4 s.h.
Individual projects for biomedical engineering graduate students, such as laboratory study, engineering design project, analysis and simulation of an engineering system, computer software development, research. Prerequisites: graduate standing and consent of advisor.

051:199 Research: Biomedical Engineering M.S. Thesis 6 s.h.
Experimental and/or analytical investigation of an approved topic for partial fulfillment of the requirements for the M.S. with thesis in biomedical engineering. Prerequisite: consent of advisor.
chemical and biochemical engineers move through management ranks to high-level administrative positions.

**Undergraduate Program**

The program’s objective is to produce graduates who have:

- a strong foundation of scientific and technical knowledge and are equipped with problem-solving, teamwork, and communication skills that will serve them throughout their careers;
- the ability to pursue careers as practicing chemical engineers in fields such as pharmaceuticals, microelectronics, chemicals, polymers/advanced materials, food processing, or environmental engineering;
- the ability to pursue advanced studies in disciplines such as chemical engineering, environmental engineering, medicine, law, or business; and
- the ability to assume professional leadership roles.

The program uses the following methods and strategies to achieve its educational objectives:

- foster a personalized, supportive environment for all students by taking advantage of the unique combination of a small college atmosphere in a major research university;
- enrich the undergraduate experience through cultural diversity, and international opportunities or experiential learning;
- provide a solid foundation and understanding of the fundamental principles of mathematics, science, and engineering;
- provide students with experience in learning and applying tools (e.g., computer skills) to the solution of theoretical and open-ended chemical engineering problems;
- provide students with opportunities to participate in multidisciplinary teams, and to develop and practice written and oral communication skills, both within the team and to a broader audience;
- provide students with opportunities to design and conduct chemical engineering experiments, and to design systems, components, and chemical processes to meet specific needs and constraints; and
- provide a contemporary grounding in professional responsibility, including ethics, the global and societal impact of engineering decisions, and the need for lifelong learning.

**Bachelor of Science in Engineering**

The College of Engineering adopted new undergraduate program curricula effective for all new students beginning fall semester 2002. The new curricula are described in this Catalog. Students who began their engineering studies before fall semester 2002 can continue to follow the old curricula (described in pre-2002 editions of the Catalog, existing program curriculum sheets, and degree evaluation forms), with possible course substitutions. They also may choose to change to the new curricula under conditions defined by each program and available from the college’s Student Development Center.

The chemical engineering program provides a broad education at the leading edge of technology. It emphasizes fundamental concepts, problem solving, laboratory techniques, and communication skills. Biological sciences join physics, chemistry, and mathematics as foundation disciplines for chemical engineering.

The sophomore, junior, and senior years emphasize chemical engineering courses such as engineering flow and heat exchange, mass transfer and separations, chemical reaction engineering, chemical process safety, chemical engineering laboratories, process dynamics and control, and process design. Experience in instrumentation, analysis, and design is obtained through an integrated laboratory program.

Routine use is made of computer-based data analysis, simulation, and design.

Students are required to participate in at least one enriching activity, which may include a research experience, a cooperative education or internship experience, study abroad, completion of the technological entrepreneurship certificate, or other approved experiences.

The B.S.E. in chemical engineering requires a minimum of 128 s.h. of credit. The curriculum covers four major stems: mathematics and basic sciences, engineering topics, elective focus area, and general education (15 s.h. of humanities and social science courses). Also required are the background courses Engineering Problem Solving I-II and Accelerated Rhetoric.

Some courses in the curriculum are prerequisites to others. Students who take courses in the following order satisfy the prerequisite requirements automatically. Students who do not follow this sequence still must satisfy all course prerequisites.

General education component courses must be selected to satisfy the requirements of the College of Engineering. See “General Education Component” in the College of Engineering introductory section of the Catalog.

Elective focus area courses must be selected according to guidelines established by the Department of Chemical and Biochemical Engineering. See “Elective Focus Area” following the curriculum list.

**FIRST YEAR**

**First Semester**

004:011 Principles of Chemistry I 4 s.h.
010:003 Accelerated Rhetoric (or 010:001 010-002) 4 s.h.
22M:031 Engineering Mathematics I: Single Variable Calculus 4 s.h.
059:005 Engineering Problem Solving I 3 s.h.
059:090 First-Year Engineering Seminar 0 s.h.

**Second Semester**

004:012 Principles of Chemistry II 4 s.h.
22M:032 Engineering Mathematics II: Multivariable Calculus 4 s.h.
22M:033 Engineering Math III: Matrix Algebra 2 s.h.
059:008 Engineering Problem Solving II 3 s.h.

**SECOND YEAR**

**First Semester**

22M:034 Engineering Mathematics IV: Differential Equations 3 s.h.
052:041 Process Calculations 3 s.h.
059:007 Engineering Fundamentals I: Statics 2 s.h.
059:008 Engineering Fundamentals II: Electrical Circuits 3 s.h.
059:009 Engineering Fundamentals III: Thermodynamics 3 s.h.
General education component course 3 s.h.

**Second Semester**

004:121 Organic Chemistry I 3 s.h.
052:091 Professional Seminar 0 s.h.
052:103 Chemical Engineering Thermodynamics 3 s.h.
052:151 Engineering Flow and Heat Exchange 3 s.h.
057:015 Materials Science 3 s.h.
General education component course 3 s.h.

**THIRD YEAR**

**First Semester**

004:122 Organic Chemistry II 3 s.h.
044:141 Organic Chemistry Laboratory 3 s.h.
052:091 Professional Seminar 0 s.h.
052:161 Mass Transfer and Separations 3 s.h.
052:171 Thermodynamics/Transport Laboratory 3 s.h.
Elective focus area course 3 s.h.

**Second Semester**

052:091 Professional Seminar 0 s.h.
052:105 Chemical Reaction Engineering 3 s.h.
052:172 Chemical Reaction Engineering/ separations Laboratory 2 s.h.
052:187 Chemical Process Safety 3 s.h.
Elective focus area courses 6 s.h.
General education component course 3 s.h.

**FOURTH YEAR**

**First Semester**

052:092 Senior Enriching Activities Seminar 0 s.h.
052:173 Senior Laboratory Experience 2 s.h.
052:185 Process Dynamics and Control in Design 3 s.h.
Advanced chemical science elective 3 s.h.
Elective focus area courses 6 s.h.
General education component course 3 s.h.

**Second Semester**

052:186 Chemical Engineering Process Design 3 s.h.
Advanced chemical science electives 3 s.h.
Elective focus area course 3 s.h.
General education component course 3 s.h.

**Elective Focus Area**

The chemical engineering program offers a variety of elective focus area options, including
standard focus areas developed and maintained by the program and flexible focus areas tailored to individual student interests. For more detailed information about elective focus areas, see the College of Engineering introductory section of the Catalog. For a list of standard chemical engineering elective focus area options and guidelines for tailored elective focus areas, see the Department of Chemical and Biochemical Engineering web site.

Graduate Programs

The Department of Chemical and Biochemical Engineering offers curricula leading to the Master of Science and Doctor of Philosophy degrees. Through course work and research, students gain an understanding of the principles of engineering science and then apply those principles to contemporary problems such as energy, environment, biotechnology, and materials. Research is emphasized, since most opportunities for graduates are in research and development.

Research and Study Areas

Current research strengths of the Department of Chemical and Biochemical Engineering are in the areas of global and regional atmospheric modeling, biomaterials medical engineering, cellular engineering, photopolymerization, and biocatalysis.

BIOMEDICAL RESEARCH

Chemical Engineering-based biomedical and artificial organ research at Iowa is an interdisciplinary effort with the Carver College of Medicine to investigate medical problems that may be solved through chemical and biochemical engineering practice. A current project with the obstetrics and gynecology department involves the use of membrane and microencapsulation technologies to develop a short-term biointerfaced pancreas for diabetic pregnancy. Another project is concerned with development of more effective vaccination methods.

The department's interdisciplinary collaborations allow chemical engineering students to take advantage of facilities in both colleges. Some of the equipment available for this research includes an refrigerated centrifuge, dissecting microscope, a clean hood, and a Diamond General Oxygen Uptake System. Students have access to the Ob/Gyn core microbiology laboratory, which contains a spectrophotometer and other specialized equipment. In addition, the department shares access to ultracentrifuges, a scintillation counter, HPLC, UV illuminator and photographic equipment, and an automatic plate reader at the Medical Research Facility.

Students involved in animal research have access to the University's Animal Care Unit, which is adjacent to the University of Iowa Hospitals and Clinics.

ENVIRONMENTAL ENGINEERING TECHNOLOGIES

Environmental contamination is a major problem facing engineers today. The Department of Chemical and Biochemical Engineering has an active research program in the environmental areas of air pollution, atmospheric chemistry, environmental change, bioremediation, and the design of new environmentally compatible technologies. Particular emphasis is placed on the chemistry and physics of local, regional, and global air-pollution problems. Research in support of this activity includes high-speed computing and detailed sensitivity analysis.

This work involves the Center for Global and Regional Environmental Research, an interdisciplinary research consortium that brings together University scientists and scholars from more than 20 disciplines, including chemistry, civil and environmental engineering, geography, geology, law, and medicine. The center's chief area of concern is environmental change.

BIOCHEMICAL AND BIOLOGICAL SEPARATION PROCESSES

Research in this area is devoted to developing a better understanding and new techniques of separation, especially for biochemical and fermentation. The department's long-standing research strengths are fundamentals and applications of membrane-based separations. Membrane separation research in the department involves fundamentals of ultrafiltration and microfiltration, reversible and irreversible fouling of membranes by protein molecules, the role of transmembrane pressure pulsing in reducing concentration polarization, demulsification via crossflow microfiltration, application of supported emulsion liquid membranes for extractive fermentation and perfusion, membrane fabrication to produce photoresponsive gas separation devices, and enzymatic membrane reactors for resolution of racemic mixtures.

Another core separation research area is the crystallization of biological macromolecules. Using a variety of environmental parameters such as pressure and temperature, researchers are evaluating the role of growth rate control on crystal quality. Other studies focus on improved crystallization screening protocols and crystal handling for subsequent structural determination via X-ray diffraction.

Photopolymerization

Photopolymerizations are chain reactions in which a liquid monomer is converted to a solid, durable polymer in a process triggered by light of the appropriate wavelength. The use of light, rather than heat, to drive a polymerization reaction offers advantages in developing new processes or products. Photopolymerizations provide both spatial control and temporal control of reactions, since light can be directed to locations of interest in the system and is easily shuttered on or off. Photopolymerizations also provide solvent-free formulations, which reduce the emissions of volatile organic pollutants, and they exhibit extremely rapid reaction rates. These advantages have led to tremendous growth in the application of photopolymerizations in the private sector, but much of this growth has occurred without a fundamental understanding of the underlying chemical processes.

Research in the Department of Chemical and Biochemical Engineering focuses on comprehensive characterization of the kinetics, mechanisms, structure, and properties of photopolymerizations. It includes the following types of studies: characterization of the photochemical processes by which polymerizations may be initiated; kinetic characterization of cationic photopolymerization; development of methods for photopolymerization of thick polymers and composites; development of photopolymerization systems based upon agricultural feedstocks; and new methods for monitoring high-speed photopolymerization reactions.

BIOCHEMICAL ENGINEERING

Biochemical engineering involves the industrial application of enzymes, microorganisms, cells, and tissues for production of chemicals, pharmaceuticals, and other materials of commercial value.

The department is active in solving problems with the use of insect cell culture for recombinant protein and viral insecticide production. Research is being conducted to improve the quality and quantity of recombinant proteins produced in large-scale bioreactors. In addition, a continuous viral insecticide production system is being developed for the large-scale production of these environmentally safe alternatives to chemical insecticides. Finally, the insect cell/baculovirus system is being used as a model system to investigate the role of oxidative stress in viral cytoxicity.

Novel rotating wall vessels developed at NASA are being used to simulate in vivo conditions with animal cell cultures. A major component of this research is the development of near-infrared spectroscopy for bioreactor monitoring, which will be used to monitor nutrients and byproducts noninvasively in real-time.

The department is active in designing technologies for the characterization and use of extremophiles, organisms that possess unusual abilities to survive in harsh chemical environments. In these studies, novel bioreactor systems that can withstand extremes of temperature, pressure, pH, and salinity are being developed. Extremophile strategies for survival also are being studied, with the aim of discovering unique enzymes for industrial application as well as evaluating molecular interactions that govern protein stability under extreme conditions.

Other work involves study of the metabolic engineering of methanol using bacteria to transform environmental pollutants. This work contributes to the interdisciplinary training of engineers and scientists to address the remediation of environmental pollutants.

The integration of biotechnology with traditional chemical engineering has led to an interdisciplinary area involving other engineering departments and the Departments of Chemistry, Biological Sciences, Biochemistry, and Microbiology and the College of Pharmacy. This focus includes involvement in the University's Center for Biocatalysis and Bioprocessing, whose fermentation capabilities are highlighted by its 1,500-liter fermentor.

Master of Science

The Master of Science is offered with thesis and nonthesis options. The M.S. degree requires a
minimum of 30 s.h. of graduate credit, including at least 24 s.h. in approved graduate-level course work, and 6 s.h. in 052:199 M.S. Thesis Research. Chemical and Biochemical Engineering for the thesis option or 6 s.h. of additional approved course work for the nonthesis option.

M.S. students are required to have a graduate g.p.a. of at least 3.00 in order to graduate. In addition, each student must pass a final M.S. examination. There is no foreign language requirement. Undergraduate courses (those numbered below 100) may not be used to satisfy the 24 s.h. requirement.

Graduate students who receive assistantships, fellowships, or other financial support awarded with the understanding that they would pursue an advanced degree with thesis are not eligible to pursue the nonthesis M.S. degree. Nonthesis M.S. students are required to complete and pass a final written exam on the basic core material.

Graduate students in the nonthesis M.S. program may petition for entry into the thesis program or the Ph.D. program by requesting a change of status through the Graduate College. The request is reviewed by the graduate admissions committee. If it is approved by the committee, it is forwarded to the chemical and biochemical engineering faculty for final approval. Students then are assigned to research advisers as though they were newly admitted graduate students. A detailed description of program requirements is available on the department’s web site.

Doctor of Philosophy

The Ph.D. is granted primarily on the basis of achievement rather than on the accumulation of semester hours of credit. However, all candidates must earn at least 72 s.h. of graduate credit. Candidates usually are expected to have completed three academic years of residence, or two years if they already hold a recognized master’s degree. All candidates must complete a core course requirement, which consists of a course in transport phenomena, a course in reaction engineering, a course in advanced engineering mathematics, a course on proposal writing, and a thermodynamics course, as well as five additional courses (30 s.h.).

Ph.D. candidates are expected to maintain a g.p.a. of at least 3.25.

All doctoral students are required to satisfy a quarter system and pass a comprehensive examination before they can become candidates for the degree. The Ph.D. comprehensive examination is the presentation and defense of the candidate’s Ph.D. research proposal. These examinations are arranged by members of the examining committee. The examinations may be repeated at the discretion of the committee. The rules for the comprehensive examination are published in the Manual of Rules and Regulations of the Graduate College (see the Graduate College section of the Catalog). There is no foreign language requirement. A final examination, which is a defense of the thesis, completes the doctoral program. A detailed description of program requirements is available on the department’s web site.

Admission

Full admission to graduate study is granted to students who have a B.S. in chemical engineering with satisfactory grades from a recognized American college or university. Graduates of foreign universities also are accepted, depending on evaluation of their records. Admission to the graduate program usually requires a g.p.a. of at least 2.80. Students who have not fulfilled the above requirements may be granted conditional admission to the M.S. program, with approval from the chair of the chemical and biochemical engineering department.

Applicants should take the verbal and quantitative parts of the Graduate Record Examination (GRE) General Test; scores should be submitted with the application. Graduate courses in chemical and biochemical engineering are designed for students who have an undergraduate background in chemical engineering. However, exceptional students from other areas also may apply for admission to the M.S. or even the Ph.D. program in chemical and biochemical engineering. Such students need to take certain undergraduate courses as background so they can perform in the graduate courses with minimum difficulty.

Financial Support

A number of fellowships, assistantships, and scholarships are available to graduate students who qualify. These are awarded on a competitive basis.

Graduate students have the opportunity to receive interdisciplinary research training in several fellowship programs administered through the Center for Biocatalysis and Bioprocessing (CBB). The program provides research training in areas that combine basic and applied research. Each year the center offers fellowships to doctoral students in biotechnology. These are funded by grants from the National Institute of General Medical Sciences, National Institutes of Health (NIH), National Science Foundation (NSF), and the CBB with funding from the state of Iowa. Through these programs, chemical and biochemical engineering students interact with students and professors from biochemistry, biological sciences, chemistry, civil and environmental engineering, medicinal and natural products chemistry, and microbiology.
Faraday cage, and relief sizing software. This equipment is used in a series of experiments to demonstrate the principles of flammability, reactivity, explosions, relief valve sizing, and electrostatics relevant to industry.

Graduate Facilities and Laboratories
To support and develop research activities, the department offers a wide variety of facilities. A summary of the major research equipment within and available to the department is listed below.

Computer Facilities
The departmental computer facilities contain a variety of graphics workstations, printers, and microcomputers. The department is supported by Computer Systems and Support (CSS). CSS maintains a large network of high performance UNIX and Windows XP workstations along with extensive commercial and public domain software. The department also has access to the University’s central research facility in high-speed vector computation. This facility has SGI Power Challenge mini-supercomputers and provides nodes for external links for access to supercomputers.

Separation and Bioseparation Processes
Equipment available for purification of biological molecules and the study of separation processes includes an ultra speed centrifuge; a microfluidizer; a French pressure cell homogenizer; a large-scale, continuous-rotating, annular bed electrophoresis column; a packed-bed electrophoresis column; a Waters Delta Prep 3000 HPLC system; an Amicon DC 30 ultrafiltration system; a small-scale hollow fiber and spiral wound membrane pilot system; membrane permeability measurement apparatus; immobilized reactor-separators; and facilities for the fabrication of membranes. The laboratory is supported by additional gas and liquid chromatographs, several UV-Vis scanning spectrophotometers, computerized data acquisition systems, and other analytical equipment. The department also has pilot plant equipment for the study of filtration, distillation, extraction, and other equilibrium stage processes.

Crystallization Studies
Equipment for crystallization studies includes a dedicated Rigaku RU300 rotating anode generator and RAXIS-II area detector for conducting X-ray diffraction studies, an ALV dual static/dynamic laser light scattering goniometer, an ALV DR1 differential refractometer, a high precision Bellingham & Stanely Abbe refractometer, three microscopic digital imaging systems, a CEC isothermal titration calorimeter, a CEC differential scanning calorimeter, a Perkin-Elmer Pyris cryogenic calorimeter, and typical protein chemistry tools (e.g., liquid chromatography, gel electrophoresis, centrifuges, and so forth).

Biochemical Engineering
Facilities in the Biochemical Engineering Laboratory include a three-liter agitated bioreactor and a six-liter airlift fully controlled bioreactor, and gas and liquid chromatographs, UV-Vis spectrophotometers, centrifuges, carbon dioxide incubators, Class II-A safety cabinets, microscopes, Coulter particle counter, rotary shaker, autoclave, 2-D gel electrophoresis equipment, and laboratory computers.

Through collaborative research agreements, graduate students also have access to specialized facilities for Electron Microscopy, Hybridoma/Tissue Culture, Flow Cytometry and Cell Sorting, Mass Spectrometry, Recombinant DNA Research, Protein Structure, and Large-Scale Fermentation.

Air Pollution Modeling and Visualization
The Geographic Information Systems (GIS) Laboratory provides state-of-the-art computer hardware and software for management, analysis, and visualization of environmental data. The equipment includes modern multiprocessor workstations with advanced graphic capabilities, as well as Macintosh and Windows PCs. Peripheral equipment includes Zip, Jaz, CD, and digital tape drives, a high quality color printer, a laser printer, and a CD writer. A Pyramid Systems Immeresadsakis provides for 3D immersive virtual reality visualization of data on a 4-by-5-foot screen.

A local network links the machines to each other and to the campuswide network, through which the laboratory accesses University mainframe computers and other on- and off-campus computing resources. A variety of software packages and programming languages, including Arc/Info, Arcview, NCAR Graphics, Matlab, S-Plus, and VisD are available for data analysis and display. Mapping grade GPS equipment produces highly accurate data, which can be used by GIS software for analysis and visualization.

The GIS laboratory also uses an SGI-Ornix multiprocessor system with 8 processors. Each processor is an MIPS R4000 running at 150 MHz. It has 512 megabytes of memory and 2 gigabytes of local disk space. The operating system is IRIX 5.3. Some of the implementations use the native IRIX support for parallel programming; others use MPI (Message Passing Interface). Some automatic tolls for generating parallel MPI programs using the SUIF compiler (Stanford University Intermediate Format) are under development. A recently acquired SOU-Power Challenge machine has 16 R4400 processors running at 200MHz with 512 megabytes of memory and 18 gigabytes of local disk space that runs IRIX 6.1.

Fundamentals and Applications of Photopolymerization
The Photopolymerizations Center was involved in the photoinitiation reaction; characterization of high-speed propagation and termination kinetics that lead to the polymer structure; and evaluation of material properties through the course of the photopolymerization reaction. Both radical and cationic photopolymerizations are studied with state-of-the-art experimental techniques to elucidate the complex chemical and physical mechanisms that control the initiation, propagation, and termination of the active centers.

Courses

General Topics

052:000 Cooperative Education Training
Assignment: Chemical Engineering 0 s.h.
Chemical engineering students participating in the Cooperative Education Program register for this course during work assignment periods. Registration provides a record of participation in the program on the student’s permanent record. Prerequisite: admission to Cooperative Education Program and consent of co-op faculty advisor.

052:041 Process Calculations
Solutions of industrial problems using material and energy balances; stoichiometric and nonstoichiometric chemical reactions, changes of state, solutions, mixing problems; computer applications. Recommended: 22M 031 or equivalent.

052:047 Unit Operations Lab I
Laboratory investigations of transport phenomena and chemical engineering unit operations; design of experiments, operating procedures, data collection techniques, report writing, computer usage, laboratory safety. Prerequisite: 052:103.

052:048 Unit Operations Lab II
Open-ended laboratory studies of transport phenomena, chemical engineering unit operations, process control, and reaction kinetics; emphasis on project design, construction, development, evaluation. Prerequisites: 052:047 and 052:105.

052:090 CBE Departmental Seminar
Introduction to the profession; presentations, visits to laboratories, industries.

052:091 Professional Seminar: Chemical Engineering 0 s.h.
Professional aspects of chemical engineering presented through lectures and discussions by guest speakers, field trips, films, panel discussions. Prerequisite: sophomore standing.

052:092 Senior Enriching Activities Seminar
Experiences to develop multidisciplinary team skills and increase understanding of the impact of engineering practice both locally and globally; written and oral discussion of student enrichment. Prerequisite: senior standing.

052:098 Individual Investigations: Chemical Engineering 0 s.h.
Individual projects for chemical engineering undergraduate students, such as laboratory study, engineering design project, analysis and simulation of an engineering system, computer software development, research. Prerequisite: consent of faculty advisor.

052:103 Chemical Engineering Thermodynamics 3 s.h.
Applications of thermodynamic principles to chemical and physical processes; prediction of material properties, phase equilibria and chemical equilibrium applied to mixtures and reacting systems. Corequisite: 052:041 or consent of instructor.

052:115 Computational Tools in Chemical Engineering 3 s.h.
Introduction to computational tools for chemical engineering problems; varied computer software packages, including Excel, ChemCad, Maple; Matlab; problem solving experience to learn strengths and weaknesses of each package. Recommended: computer background.

052:117 Intermediate Thermodynamics 3 s.h.
Fundamental principles of thermodynamics as applied to phase equilibrium; properties of fluids, first and second law, variable composition systems, behavior of real fluids, mathematical techniques for solution thermodynamics. Prerequisite: 052:103 or 058:040 or graduate standing. Same as 058:140.

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Introduction to separation/purification techniques in biochemical engineering.

Biochemical Engineering arr.

Materials Science

052:156 Scanning Electron Microscopy and X-Ray Microanalysis 3 s.h.

Synthesis; special considerations of animal cell cultures (e.g., biochemical engineering, with emphasis on recombinant protein production, protein design, structure-activity relationships, biosensor technology, microbial transformations, biodegradation of environmental pollutants. Repeatable. Prerequisite: 052:225. Corequisite: 052:105.

Environmental Engineering

052:211 Intermediate Chemical Reaction Kinetics 3 s.h.

052:171 Transport Phenomena 3 s.h.

052:240 Polymer Fundamentals 1 s.h.

Biophysics, kinetic, cell growth kinetics, transport phenomena in bioreactors, bioreactor design, biodiesels, formulation and sterilization of growth media, commercial applications of biotechnology. Prerequisites: 004:121 and 22M:031.

052:224 Advanced Biochemical Engineering 3 s.h.

052:220 Advanced Chemical Engineering 3 s.h.

052:120 Special Topics 1 s.h.

052:196 Photopolymerization Topics 1 s.h.

052:252 Biotechnology of Extracellular Polymers 3 s.h.

052:217 Transport Phenomena I 3 s.h.

052:189 Individual Investigations: Chemical and Biochemical Engineering arr.

052:159 Scanning Electron Microscopy and X-Ray Microanalysis 3 s.h.

052:242 Polymer Chemistry 3 s.h.

052:210 Chemical Reaction Engineering 3 s.h.

052:236 Atmospheric Chemistry and Physics 3 s.h.

052:237 Green Chemical Engineering 3 s.h.

052:118 Advanced Mathematical Methods for Engineers 3 s.h.

052:173 Senior Laboratory Experience 2 s.h.

052:212 Transport Phenomena II 3 s.h.

052:126 Transport Phenomena in Biomedical Engineering 3 s.h.

052:163 Advanced Mass Transfer and Separations 3 s.h.

052:125 Introduction to Biochemical Engineering 3 s.h.

052:242 Polymer Chemistry 3 s.h.

052:174 Process Dynamics and Control in Design 3 s.h.

052:111 Mass Transfer and Separations 3 s.h.

052:199 M.S. Thesis Research: Chemical and Biochemical Engineering 3 s.h.

052:196 Photopolymerization Topics 1 s.h.

052:175 Engineering Aspects of Animal Cell Culture 3 s.h.

052:186 Chemical Reaction Engineering 3 s.h.

052:214 Thermodynamic and Transport Phenomena in Biomedical Engineering 3 s.h.

052:176 Photopolymerization Topics 1 s.h.

052:299 Research: Chemical and Biochemical Engineering Ph.D. Dissertation 4 s.h.

052:218 Advanced Mathematical Methods for Chemical Engineers 3 s.h.

052:236 Atmospheric Chemistry and Physics 3 s.h.

052:186 Chemical Reaction Engineering 3 s.h.

052:196 Photopolymerization Topics 1 s.h.

052:225 Biotechnology of Extracellular Polymers 3 s.h.

052:191 Seminar in Chemical and Biochemical Engineering 0 s.h.

052:172 Chemical Reaction Engineering/ Separations Laboratory 2 s.h.

052:190 Chemical Reaction Engineering 3 s.h.

052:183 Process Dynamics and Control in Design 3 s.h.

052:225 Biotechnology of Extracellular Polymers 3 s.h.
Civil and Environmental Engineering • College of Engineering

Undergraduate Program

The program's objective is to provide a well-rounded, superior engineering education that:

• provides students with appropriate proficiency in the civil engineering subdisciplines of structures, water-resources engineering, transportation, and environmental engineering;
• ensures that students are knowledgeable about the importance, procedures, and benefits of professional licensure and continuing education;
• offers design experiences that include projects in the curriculum that are offered by and guided in part by the professional community; and
• provides research opportunities to undergraduate students through the department's connections with on-campus research entities including IHR—Hydroscience and Engineering, the Center for Global and Regional Environmental Research, the Public Policy Center, the Center for Computer Aided Design, the Center for Biocatalysis and Bioprocessing, and the Center for Health Effects of Environmental Contamination.

Bachelor of Science in Engineering

The College of Engineering adopted a new undergraduate program curricula for all new students beginning fall semester 2002. The new curricula are described in this Catalog. Students who began their engineering studies before fall semester 2002 can continue to follow the old curricula (described in pre-2002 editions of the Catalog, existing program curriculum sheets, and degree evaluation forms), with possible course substitutions. They also may choose to change to the new curricula under conditions defined by each program and available from the college's Student Development Center.

The B.S.E. in civil engineering requires a minimum of 128 s.h. of credit. The curriculum covers four major stems: mathematics and basic sciences, engineering topics, elective focus area, and general education (15 s.h. of humanities and social science courses). Also required are the background courses Engineering Problem Solving I-II and Accelerated Rhetoric.

The curriculum list.

Elective focus area courses must be selected according to guidelines established by the Department of Civil and Environmental Engineering. See “Elective Focus Area” following the curriculum list.

FIRST YEAR

First Semester

004:011 Principles of Chemistry I 4 s.h.
010:003 Accelerated Rhetoric 4 s.h.
22M:031 Engineering Mathematics I: Single Variable Calculus 4 s.h.
053:010 CEE First-Year Seminar 0 s.h.
059:005 Engineering Problem Solving I 3 s.h.

Civil Subtrack

FIRST YEAR

Second Semester

22M:032 Engineering Mathematics II: Multivariable Calculus 4 s.h.
22M:040 Matrix Algebra for Engineers 2 s.h.
029:081 Introductory Physics I 4 s.h.
059:006 Engineering Problem Solving II 3 s.h.
General education component course 3 s.h.

SECOND YEAR

First Semester

22M:034 Engineering Mathematics IV: Differential Equations 3 s.h.
029:082 Introductory Physics II 3 s.h.
053:015 Civil and Environmental Engineering Practice 2 s.h.
059:007 Engineering Fundamentals I: Statics 2 s.h.
059:008 Engineering Fundamentals II: Electrical Circuits 3 s.h.
059:009 Engineering Fundamentals III: Thermodynamics 3 s.h.

Second Semester

22S:039 Probability and Statistics for the Engineering and Physical Sciences 3 s.h.
053:020 CEE Sophomore Seminar 0 s.h.
053:050 Natural Environmental Systems 3 s.h.
053:105 Engineering Geology 3 s.h.
057:010 Dynamics 3 s.h.
057:019 Mechanics of Deformable Bodies 3 s.h.

THIRD YEAR

First Semester

22S:039 Probability and Statistics for the Engineering and Physical Sciences 3 s.h.
053:030 Soil Mechanics 3 s.h.
053:033 Principles of Structural Engineering 3 s.h.
053:063 Principles of Transportation Engineering 3 s.h.
053:091 Professional Seminar: Civil Engineering 0 s.h.
057:020 Fluid Mechanics 4 s.h.
A course on civil infrastructure 3 s.h.

Second Semester

053:055 Principles of Environmental Engineering 3 s.h.
053:071 Principles of Hydraulics and Hydrology 3 s.h.
053:086 Civil Engineering Materials 3 s.h.
053:091 Professional Seminar: Civil Engineering 0 s.h.
Two elective focus area courses 6 s.h.

FOURTH YEAR

First Semester
053:091 Professional Seminar: Civil Engineering 0 s.h.
General education component course 3 s.h.
Elective focus area course 3 s.h.
Two of these:
053:034 Structural Design I 3 s.h.
053:157 Environmental Engineering Design 3 s.h.
053:174 Water Resource Design 3 s.h.

Second Semester
053:094 Project Design and Management in Civil Engineering 3 s.h.
053:091 Professional Seminar: Civil Engineering 0 s.h.
General education component course 3 s.h.
Three elective focus area courses 9 s.h.

Environmental Subtrack

FIRST YEAR

Second Semester
004:012 Principles of Chemistry II 4 s.h.
22M:032 Engineering Mathematics II: Multivariable Calculus 4 s.h.
22M:040 Matrix Algebra for Engineers 2 s.h.
029:081 Introductory Physics I 4 s.h.
053:010 CEE First-Year Seminar 0 s.h.
059:006 Engineering Problem Solving II 3 s.h.

SECOND YEAR

First Semester
22M:041 Differential Equations for Engineers 3 s.h.
053:015 Civil and Environmental Engineering Practice 2 s.h.
053:041 Electronic Circuits 4 s.h.
09-007 Engineering Fundamentals I: Statics 2 s.h.
09:009 Engineering Fundamentals II: Thermodynamics 3 s.h.
General education component course 3 s.h.

Second Semester
22S:043 Engineering Probability and Statistics 3 s.h.
053:020 CEE Sophomore Seminar 0 s.h.
053:105 Engineering Geology 3 s.h.
053:050 Natural Environmental Systems 3 s.h.
057:010 Dynamics 3 s.h.
057:019 Mechanics of Deformable Bodies 3 s.h.
General education component course 3 s.h.

THIRD YEAR

First Semester
053:030 Soil Mechanics 3 s.h.
053:033 Principles of Structural Engineering 3 s.h.
053:063 Principles of Transportation Engineering 3 s.h.
053:091 Professional Seminar: Civil Engineering 0 s.h.
057:020 Fluid Mechanics 4 s.h.
A course on civil infrastructure 3 s.h.

Second Semester
053:055 Environmental Engineering: Engineered Systems 3 s.h.
053:071 Principles of Hydraulics and Hydrology 3 s.h.
053:086 Civil Engineering Materials 3 s.h.
053:091 Professional Seminar: Civil Engineering 0 s.h.
053:152 Environmental Chemistry I 3 s.h.
Elective focus area course 3 s.h.

FOURTH YEAR

First Semester
053:091 Professional Seminar: Civil Engineering 0 s.h.
General education component course 3 s.h.
Elective focus area course 3 s.h.
Two of these:
053:034 Structural Design I 3 s.h.
053:157 Environmental Engineering Design 3 s.h.
053:174 Water Resource Design 3 s.h.

Elective Focus Area
The civil engineering program offers a variety of elective focus area options, including standard focus areas developed and maintained by the program and flexible focus areas tailored to individual student interests.

The program’s standard elective focus areas include the following areas in civil engineering: environmental engineering, hydraulics and water resources, structures and materials, transportation, and urban and regional planning. Students also may choose an elective focus area that provides a broad embrace of civil engineering. Or they may complete one of the elective focus areas offered jointly by civil engineering and another engineering department; these elective focus areas cut across programs (e.g., computer-aided engineering, design and optimization, environmental processes).

All civil engineering students must take one general education component course related to their elective focus area.

For more information about elective focus areas, see the College of Engineering introductory section of the Catalog. For a list of standard civil engineering elective focus area options and guidelines for tailored elective focus areas, see the Department of Civil and Environmental Engineering web site.

Graduate Programs
The Department of Civil and Environmental Engineering offers curricula leading to the Master of Science and Doctor of Philosophy. Both programs prepare students for professional careers and further study. The principal areas of concentration are environmental engineering and science; hydraulics, hydrology, and water resources; structures, mechanics, and materials; and transportation.

Research and Study Areas

ENVIRONMENTAL ENGINEERING AND SCIENCE
This curriculum provides a comprehensive base of course work and research in the areas of air and water-quality management, environmental chemistry and microbiology, natural systems modeling, and processes for water supply, pollution control, and solid and hazardous waste management. Interdisciplinary specialization and study are conducted with programs including the Iowa Institute of Hydraulic Research, the Center for Global and Regional Environmental Research, the Center for Health Effects of Environmental Contamination, the Hazardous Substances Research Center, the Center for Biocatalysis and Bioprocessing; the Departments of Chemical and Biochemical Engineering, Geography, Geoscience, Microbiology, Occupational and Environmental Health; and the Urban and Regional Planning Program. New areas of interdisciplinary focus include groundwater contamination, biotechnology, global climate change, and hazardous substances.

GLOBAL AND REGIONAL ENVIRONMENTAL RESEARCH
The department has an active interdisciplinary research program in the environmental areas of air pollution, water pollution, groundwater remediation, global atmospheric change, and hazardous waste management. Particular emphasis is placed on the microbiology, chemistry, and physics of local, regional, and global air, soil, and water quality problems. Research includes sophisticated environmental quality analysis, high-speed computing, and detailed sensitivity analysis. The Department of Chemical and Biochemical Engineering and the Center for Global and Regional Environmental Research also collaborate in these endeavors.

HYDRAULICS, HYDROLOGY, AND WATER RESOURCES
The hydraulics, hydrology, and water resources curricula are associated with the Iowa Institute of Hydraulic Research, a world-renowned research organization. Senior staff members of the institute are professors in the program; they devote about half of their time to teaching.

The institute offers unique opportunities for students to participate actively in the research, analysis, and design aspects of real-world problems. Considerable attention is given to the use of computers in mathematical modeling and in the acquisition and processing of data. The Computational Laboratory for Hydro meteorology and Water Resources, with its high-speed computer facilities and advanced graphics and communication software, complements the hydrology and water resources curricula.
STRUCTURES, MECHANICS, AND TRANSPORTATION
The structures, mechanics, and transportation curricula are directed primarily toward computer-aided structural design, optimization, mechanics of materials, and transportation systems and facilities. Special strengths exist in the areas of structural optimization, computational mechanics, micro-mechanics of heterogeneous materials, constitutive modeling, ice engineering, and traffic management systems. Course work and research are available in all of these areas.

Cooperative relationships exist with the graduate programs in urban and regional planning, transportation studies, mechanical engineering, and biomedical engineering. Collaborative research is conducted with the Public Policy Center, the Center for Computer-Aided Design, the National Advanced Driving Simulator, and the Carver College of Medicine. (See “Urban and Regional Planning” and “Transportation Studies” in the Graduate College section of the Catalog.)

Master of Science
The Master of Science programs in civil and environmental engineering are designed to permit further concentration in the area or areas of the student’s choice. Graduates are placed in advanced technical positions in industry, consulting firms, or government, or they may continue their graduate study. Current and projected demand for M.S. graduates is excellent.

In general, the plan of study, with or without thesis, must include a minimum of 30 s.h., with no more than 6 s.h. allowed for the thesis. An additional 3 s.h. are required in the nonthesis environmental engineering and science curriculum.

Students, with the approval of their adviser, develop a plan of study that satisfies special requirements of their chosen curriculum.

All degree candidates are expected to have a g.p.a. of at least 3.00. They must pass an oral examination and, in some program options, a written examination.

Doctor of Philosophy
The doctoral degree is granted primarily on the basis of achievement, rather than on a prescribed course of study. Requirements for semester hours of course work vary among the specialty areas. Candidates usually need at least three years of full-time work beyond the baccalaureate degree, one year of which is devoted to the preparation of a dissertation that contributes to knowledge in the field. In some specialty areas, a qualifying examination may be required. The Ph.D. program requires 72 s.h. beyond the baccalaureate degree. Some program options have higher requirements.

All doctoral students are required to pass a written and oral comprehensive examination before being formally admitted to candidacy for the degree. This examination usually is taken when virtually all of the student’s course work has been completed.

The program culminates in a final examination, in which candidates must successfully defend their dissertation.

Doctoral candidates are expected to maintain a g.p.a. of at least 3.00 throughout the doctoral program.

The program also cooperates in interdisciplinary doctoral programs with the Program in Applied Mathematical and Computational Sciences (see “Applied Mathematical and Computational Sciences” in the Graduate College section of the Catalog).

Admission
Each curriculum of the program is quite flexible; students may be admitted from all disciplines of engineering as well as from the mathematical and basic sciences.

Applicants for the master’s degree program are expected to have a cumulative undergraduate g.p.a. of at least 3.00. For admission to candidacy for the doctorate, the minimum g.p.a. is 3.00, based upon previous graduate work. Applicants whose grade-point averages are slightly lower are invited to correspond regarding admission possibility. A Graduate Record Examination (GRE) General Test score of at least 1100 (verbal and quantitative) is recommended. Lower GRE General Test scores are considered with other evidence of academic promise (recommendation letters, grade-point average). GRE General Test scores are used in admission and financial aid decisions.

All applicants must meet the general admission requirements of the Graduate College (see the Graduate College section of the Catalog).

Financial Support
A significant number of research assistantships are available on a variety of research projects, as are a limited number of teaching assistantships. Selection of recipients usually is based on scholastic achievement and research interest.

Special Facilities and Laboratories
Undergraduate Core
The first year engineering course 059:005 Engineering Problem Solving I includes an introduction to the Engineering Computer Network (ECN). Students in the course use computer-aided design tools on engineering work stations. All civil engineering courses require knowledge of personal computers and contain significant computer content.

For information about laboratories affiliated with core courses coordinated by other engineering departments, see the Catalog section for each of the departments.

Required and Elective Undergraduate Laboratories
053:030 Soil Mechanics (3 s.h.): equipped for determining the classification, seepage characteristics, stress-strain properties, and strength of soils.

053:050 Natural Environmental Systems (3 s.h.): environmental chemistry and biology of air, water, and soil quality, air and water pollution, limnology, global atmospheric change, fate and transport of pollutants; hazardous substances, risk analysis, standard setting.

053:055 Principles of Environmental Engineering (3 s.h.): conducted at the University Water Treatment Plant and Iowa City Wastewater Plant for demonstrations of unit operations and processes of water and wastewater treatment, and applications in environmental chemistry and microbiology. To be revised spring 2005.

053:071 Principles of Hydraulics and Hydrology (3 s.h.): hydraulics of pressure conduits and open channels, dimensional analysis, flow measurements, hydraulic machinery, with laboratory. To be revised spring 2005.

053:085 Experiments in Structures/ Mechanics/Transportation (1 s.h.): experimentation in the structural and transportation areas; offered at the undergraduate Construction Materials Laboratory as a course with hands-on experimentation.

053:153 Environmental Chemistry Laboratory (3 s.h.): experiments to demonstrate fundamental principles of aquatic chemistry and chemical analyses for characterization of water and wastewater quality, conducted in the Environmental Engineering Laboratories.

053:154 Environmental Microbiology (3 s.h.): typical microorganisms isolated and their physiologic and metabolic characteristics studied in the Environmental Engineering Laboratories.

053:156 and 053:151 Physical/Chemical and Biological Treatment Processes course laboratory (both 3 s.h.): unit operations, processes studied in bench scale experiments; use of typical process analytical parameters; experiments conducted in the Environmental Engineering Laboratories, University Water Plant, and Iowa City Wastewater Treatment Plant.

Graduate Laboratories
ENVIRONMENTAL ENGINEERING AND SCIENCE LABORATORIES
The Environmental Engineering and Science Laboratories provide state-of-the-art facilities, equipment, and expertise to support both undergraduate and graduate-level instruction and research. The laboratories support research in contaminant fate and transport in various media (air, water, soil, plants, and microbes), drinking water disinfection and distribution, wastewater treatment, geochemical-contaminant interactions, bioremediation, and phytoremediation. They also provide resources for analytical chemistry, electrochemistry, molecular biology, microscopy, computer modeling, and simulated environments on the bench- and pilot-scale levels.
The Environmental Engineering and Science Laboratories are affiliated with the University’s Center for Health Effects of Environmental Contamination and its Center for Global and Regional Environmental Research, and the UI Environmental Health Sciences Research Center, an affiliate of the National Institute of Environmental Health Sciences (NIHES).

HYDRAULICS, HYDROLOGY, AND WATER RESOURCES LABORATORIES

The teaching and research functions of the department are closely connected to the research and contractual activities of the Iowa Institute of Hydraulic Research, which also includes a Computational Laboratory for Hydrometeorology and Water Resources.

The institute houses some of the most modern research facilities in the world, including a 330-foot towing tank, several hydraulic flumes and wind tunnels, a dispersion flume, a wave tank, three special low-temperature flow facilities for investigation of ice phenomena, an environmental hydraulic flume for modeling of atmospheric flows, a refrigerated wind tunnel, a computer-controlled data handling system, 2-D and 3-D laser doppler anemometers for microscale velocity measurements, and extensive computational facilities.

The Computational Laboratory for Hydrometeorology and Water Resources uses a Hewlett-Packard DN10000 superminicomputer, several Hewlett-Packard high-speed workstations, and graphic terminals and peripherals. It is equipped with advanced graphic software, communication software, mathematical software packages, and a Geographic Information System (GIS).

STRUCTURES, MECHANICS, AND TRANSPORTATION LABORATORIES

Laboratories for computational solid mechanics, construction materials, optimal design, plasticity, soils testing, structural materials testing, and ice engineering are available for teaching and research. The Optimal Design Laboratory and the Computational Solid Mechanics Laboratory have state-of-the-art networks of Hewlett-Packard and Silicon-Graphics workstations and other peripherals. These labs are used to conduct research on modern computational methods for analysis and design optimization of complex structural systems.

The Construction Materials, Soils, and Plasticity Labs are equipped for the determination of physical and mechanical properties of metals, concrete, soils, plastics, and bituminous materials. Equipment includes a computer-controlled MTS axial-torsional test system, universal testing machine, and a creep machine.

The Construction Materials Laboratory contains testing equipment for concrete, asphalt, and other materials used in infrastructure construction.

The Ice Engineering Research Lab has a uniaxial MTS test system with a state-of-the-art data acquisition system. There also is a Tinnius Olson testing machine, two ice tanks, a milling machine (in a cold room for preparation of ice samples), and a variety of other equipment to allow testing of the mechanical properties of ice and of ice/structure interaction processes.

Courses

Special Topics

053:000 Cooperative Education Training Assignment: Civil Engineering 0 s.h.

Civil engineering students participating in the Cooperative Education Program register in this course during work assignment periods; registration provides a record of participation in the program on the student’s permanent record card. Prerequisites: admission to the Cooperative Education Program and consent of faculty advisor.

053:010 CEE First-Year Seminar 0 s.h.

Introduction to civil and environmental engineering curriculum and profession; presentations by senior undergraduate students, graduate students, faculty, laboratory visits. Prerequisite: first-year standing.

053:015 Civil and Environmental Engineering Practice 2 s.h.

Concepts of the built environment and the natural environment; infrastructure life cycle; engineering communication (plans, drawings, and information systems, computer-aided drafting); field trip to major city.

053:020 CEE Sophomore Seminar 0 s.h.

Introduction to civil and environmental engineering curriculum and profession; presentations by senior undergraduate students, graduate students, faculty, laboratory visits. Prerequisite: sophomore standing.

053:068 Civil Infrastructure 3 s.h.

053:083 Surveying and Remote Sensing 3 s.h.

Engineering surveying measurements, methods, computations. Prerequisite: 059:005.

053:084 Project Design and Management in Civil Engineering 3 s.h.

Design of civil engineering systems, individual and team projects oriented toward the solution of local problems, projects management, construction management, contracts, budgeting, bidding. Prerequisites: 053:034, 053:050, 053:063, 053:174, and sensor standing.

053:091 Professional Seminar: Civil Engineering 0 s.h.

Professional aspects of civil engineering presented through lectures and discussions by guest speakers, field trips, films, panel discussions. Prerequisite: Junior standing.

053:098 Individual Investigations: Civil Engineering 3 s.h.

Individual projects for civil engineering undergraduate students; laboratory study, engineering design project, analysis and simulation of an engineering system, computer software development, research. Prerequisite: consent of faculty adviser.

053:101 International Business and Infrastructure 3 s.h.

Differences between international and domestic businesses; how differences in infrastructure in the international environment influence business operations; effects of infrastructure on international commerce and business practices; case studies, site visits.

053:111 Numerical Calculations 3 s.h.

Development of algorithms for function approximations, numerical integration, differentiation, and solution of algebraic and differential equations, with emphasis on digital computations; initial and boundary value problems. Prerequisite: 22M:041.

053:112 Engineering Design Optimization 3 s.h.

Project design involving modeling, formulation, and analysis using optimization concepts and principles; linear and nonlinear models, optimal design, mathematical methods. Prerequisites: 22M:033, 059:007, and junior standing. Same as 058:112.

053:113 Mathematical Methods in Engineering 3 s.h.


053:115 Computer-Aided Engineering 3 s.h.

Fundamentals of computer graphics, visualization of engineering design and analysis data, solid modeling, window-based user interface development; applications of these techniques to engineering problems. Prerequisite: working knowledge of FORTRAN or Pascal. Same as 058:110.

053:182 Statistics for Engineers 3 s.h.

Application of statistical techniques for evaluation and optimization of engineering designs; uses of spreadsheets, statistical software, design and analysis of experiments; regression analysis; system optimization; model determination of stochastic systems. Prerequisite: 225:039 or equivalent.

053:210 Developing Professional Service Business 2-3 s.h.

Exposes broad range of engineering, medical, and business students to the unique challenges of creating a specialized business; how professional skills can be combined in a customer-oriented enterprise. Open only to M.B.A., engineering, or health science students or to others with consent of instructor. Same as 067:210.

053:212 Analytical Methods in Fluid/Solid Dynamics 3 s.h.


053:214 Analytical Methods in Mechanical Systems 3 s.h.

Functional analysis applied in mechanics and dynamics; calculus of variations; variational methods; Ritz and Galerkin methods; ordinary differential equations; boundary and initial value problems; stability theorems; perturbation of linear systems. Prerequisite: 053:113. Same as 058:214.

Structures, Mechanics, and Transportation

053:030 Soil Mechanics 3 s.h.

Identification and classification of earth materials; hydraulic and mechanical properties of soils; soil improvement; laboratory testing. Prerequisite: 057:019.

053:033 Principles of Structural Engineering 3 s.h.

Fundamental principles of structural analysis applied to statically determinate and indeterminate structures, continuous beams, trusses, and frames; external and internal equilibrium, compatibility of deformation, influence lines, virtual work; parallel use of classical and matrix formulation; slope deflection, flexibility and stiffness methods; use of computers. Prerequisite: 057:019.

053:034 Structural Design I 3 s.h.

Concepts and procedures in structural design, load and resistance factors; design of tension members, beams, columns, and connections; composite design; and computer applications.

053:063 Principles of Transportation Engineering 3 s.h.

History of transportation modes, new transport technologies, traffic operations and control, economic evaluation of transport alternatives, transportation planning, roadway design and construction, route location, preventive maintenance strategies. To be revised fall 2014. Prerequisites: 059:039 and 057:021.

053:080 Civil Engineering Materials 3 s.h.

Structure, strength and failure, durability, deformation, practice, and processing for primary construction materials systems, including steel, aluminum, concrete, asphalt, fiber-reinforced composites, masonry, timber. Prerequisites: 059:008 and 057:019. Corequisite: 053:033.

053:130 Construction Materials 3 s.h.

Structure, strength and failure, durability, deformation, practice, and processing for primary construction materials systems, including steel, aluminum, concrete, asphalt, fiber-reinforced composites, masonry, timber. Prerequisites: 053:030, 057:015, and 057:019.

053:132 Fundamentals of Vibrations 3 s.h.

Fundamental aspects of the vibration of linear discrete and continuous mechanical and structural systems; harmonic, periodic, arbitrary excitation, numerical applications. Prerequisites: 057:019. Same as 058:153.

053:133 Finite Element I 3 s.h.

One- and two-dimensional boundary value problems; heat flow, fluid flow, torsion of bars, trusses and frames; isoparametric mapping, higher order elements; elasticity problems; use of commercial software. Prerequisite: 057:019. Same as 058:115.

053:134 Structural Design II 3 s.h.

Fundamental analysis and design of reinforced concrete members and structures; flexure, shear, bond, continuity, beams, one-way slab system; columns. Corequisite: 053:033.
Hydraulics, Hydrology, and Water Resources

053:071 Principles of Hydraulics and Hydrology 3 s.h.
Prerequisites: grade of C or better in 046:275, 046:276, 052:275, 052:276, 099:275.

053:103 Water Quality 3 s.h.
Sources, availability, uses, characteristics, criteria, best management practices for surface waters; protection of waters impaired by eutrophication, soil erosion and sedimentation, pathogenic organisms, habitat destruction, wastewater discharges, contaminated sediments, atmospheric deposition, watershed development, invasive species, irrigation return flows, stormwater discharges, nonpoint sources, agricultural runoff; laboratory component, measurement of water quality characteristics in the field.

053:116 Probabilistic Methods in Hydrosience 3 s.h.
Concentration of probability models used in hydraulics, hydrology, and water resources; derived distributions; multivariate models and estimation of model parameters; analysis of data and model building; uncertainty analysis. Prerequisites: 220:041 and 225:039.

053:117 Remote Sensing 3 s.h.
Fundamentals of electromagnetic waves, atmospheric radiation transfer, passive remote sensing, weather radar, hydrologic applications of remote sensing. Prerequisite: 053:116 or consent of instructor.

053:128 Fluidic Geomorphology 3 s.h.
Hydrological principles; stream channel processes; fluvial geomorphological concept of the drainage basin system; spatial and temporal variation in water distribution; analyses of hydrological data; flow mechanisms, sediment transport; forecasting procedures; hydrograph construction, and modeling. Prerequisite: consent of instructor. Same as 012:138.

053:169 Intermediate Mechanics of Fluids 3 s.h.
Basic concepts and definitions; pressure distribution in a fluid; governing equations and boundary conditions; integral and differential analysis; dimensional analysis and similarity; experimental analysis; laminar and turbulent internal and external flows; potential flows; engineering applications. Prerequisite: 057:020. Same as 058:160.

053:170 Flow in Open Channels 3 s.h.
Energy and momentum principles in open channel flow; uniform flow; gradually varied flow; rapidly varied flow; unsteady flow; flood routing. Prerequisite: 053:071.

053:171 Water Resources Engineering 3 s.h.
Planning and economics of water resources projects; stochastic basis of design; flood control; river navigation works; hydraulic machinery; hydraulic power systems; classification, functions of hydraulic structures; hydraulic design of spillways, energy dissipators, gates, outlet works; design of canal, other water conveyance structures; design of municipal and industrial outfall structures. Prerequisite: 053:174.

053:172 Experimental Methods in Fluid Mechanics and Heat Transfer 3 s.h.
Review of theory; importance of experiments; modeling and scaling laws; experimental equipment; requirements for conducting an experiment; data analysis; hand-on experiments; computer applications. Prerequisite: 058:080 or equivalent. Same as 058:162.

053:173 Mechanics of Sediment Transport 3 s.h.
Laws governing fall velocity; applications to particle-size analysis; incipient motion, bed forms, bed load, suspended load, natural river processes; theory and practice of movable-bed model experiments. Prerequisite: 053:170.

053:174 Water Resource Design 3 s.h.
Storage reservoirs, design of dams and control works, water and wastewater transfer systems; computer applications. Prerequisites: 225:030 and 053:071.

053:177 Theory and Practice of Hydraulic Modeling 3 s.h.
Theoretical bases for hydraulic models developed from governing equations; theory of analysis; practical aspects of construction and operation of Froude and Reynolds models; modeling of hydraulic machinery; rivers, tidal flows, heated discharges, ice phenomena, modern instrumentation and data-handling techniques. Prerequisite: 053:071.

053:178 Hydrometeorology 3 s.h.
Atmospheric thermodynamics, precipitation processes; evaporation; infiltration; surface runoff; hydrographs, runoff relations; runoff hydrography; storage problems; frequency, intensity, duration studies of storms, floods, droughts; hydrometeorological observations and network design; watershed modeling; urban hydrology climate.

053:179 Hydroclimatology 3 s.h.
Thermodynamic and flow characteristics of the atmospheric occurrence of precipitation associated with mid-latitude weather systems, evaporation, measuring precipitation and evaporation, floods and droughts, regional precipitation climatology, atmospheric dynamics.

053:180 Field Methods: Environmental Processes 2-4 s.h.
Problem definition and research design; sampling theory; procedures; and recording methodologies for collection of primary data, data analysis; interpretation of physical and environmental processes. Repeatable: may be taken six times. Prerequisite: consent of instructor. Same as 012:195.

053:181 Vadose Zone Hydrology 3 s.h.
Same as 012:187.

053:186 Contaminant Hydrogeology 3 s.h.
Same as 012:186.

053:215 Hydrogeology Seminar 3 s.h.
Repeatable. Same as 012:210.

053:270 Coastal Hydrodynamics 3 s.h.
Waves, tides, harbor oscillations; coastal structures, estuary dynamics, salinity intrusion, sediment transportation in estuaries; beach processes and evolution. Prerequisite: 053:169.

053:272 Environmental Dispersion Processes 3 s.h.
Review of classical diffusion theory; longitudinal dispersion, transverse and vertical mixing in free-surface turbulent shear flow; application to natural channels; selected topics including stream-river mixing and dispersion of heated effluents. Corequisite: 053:169.

053:273 Computational Hydraulics 3 s.h.
General review of numerical methods; one-dimensional unsteady flow; quasi-two-dimensional unsteady flow; unsteady dispersion in rivers; water and sediment routing in rivers; calibration. Prerequisites: 053:169 and 053:170.

053:276 Viscous Flow 3 s.h.
Equations of compressible viscous flow; classical exact analytical and numerical solutions; flow regimes and approximations; laminar boundary layer: equations, solution methods, applications; introduction to stability theory; incompressible turbulent flow: mean flow and Reynolds-stress equations, modeling, solution procedures, and applications; compressible boundary layer. Prerequisite: 053:169. Same as 058:260.

053:277 Inviscid Flow 3 s.h.
Flow of an inviscid, incompressible fluid; steady and unsteady two and three-dimensional flows, irrotational flows; forces and moments acting on bodies; conformal mapping; method of images; separation of variables; slender body theory; Green’s functions and integral equations; numerical methods; inviscid compressible flow; shock waves. Prerequisite: 053:169. Same as 058:262.

053:280 Hydrosystems Design and Operation 3 s.h.
Spatial estimation of hydrologic variables; design of sampling networks; derived distributions of hydrologic variables; flood frequency analysis; real-time hydrometeorologic forecasting; statistical inference applications to surface and groundwater models; stochastic optimization and control of water resources systems, multiplicative analysis. Prerequisites: 053:116 and 053:178.

Graduate Seminars, Advanced Topics, Research

053:190 Readings in Civil and Environmental Engineering 3 s.h.
For graduate nominees who want to earn credit in undergraduate civil and environmental engineering courses. Prerequisites: graduate standing in a discipline other than engineering and consent of instructor.

053:191 Graduate Seminar: Structures, Mechanics, Materials 3 s.h.
Presentation and discussion of recent advances and research in structures, mechanics, and materials engineering by guest lecturers, faculty, students. Prerequisite: senior or graduate standing.

053:192 Environmental Engineering Seminar 0-3 s.h.
Presentation and discussion of current topics, case studies, and research in environmental science and engineering by students, guest lecturers, faculty. Prerequisite: senior or graduate standing.

053:193 Graduate Seminar: Hydraulics, Hydrology, and Water Resources 0-3 s.h.
Presentation and discussions of recent advances and research in hydraulics, hydrology, and water resources by guest lecturers, faculty, students. Prerequisite: senior or graduate standing.

053:195 Contemporary Topics in Civil and Environmental Engineering 3 s.h.
New topics or areas of study not formally offered in other civil and environmental courses; ice engineering, chaos and strange attractors, remote sensing, nonlinear dynamics of hydrologic processes, advanced water and wastewater treatment processes, hazardous waste control, global climate change, damage mechanics; based on faculty/student interest. Prerequisite: senior standing.

053:198 Individual Investigations: Civil and Environmental Engineering 3 s.h.
Indirect projects for civil and environmental engineering graduate students: laboratory study, engineering design project, analysis and simulation of an engineering system, computer software development, research. Prerequisites: graduate standing and consent of faculty adviser.

053:199 Research: Civil and Environmental Engineering M.S. Thesis 3 s.h.
Experimental and/or analytical investigation of an approved topic for partial fulfillment of requirements for the M.S. degree in civil and environmental engineering. Prerequisites: graduate standing and consent of faculty adviser.

053:299 Research: Civil and Environmental Engineering Ph.D. Dissertation 3 s.h.
Experimental and/or analytical investigation of an approved topic for partial fulfillment of requirements for the Ph.D. degree in civil and environmental engineering. Prerequisite: consent of faculty adviser.

Chair: Jon G. Kuhl
Professors emeriti: Earl D. Erman, Adrianus Korpel
Associate professors: Mark S. Andersland, Gary Christensen
Assistant professors: Daniel Tiedens, Qizhang Liu

Graduate degree: M.S., Ph.D. in Electrical and Computer Engineering

Web site: http://www.engineering.uiowa.edu/~ece
As the United States strives to retain or enlarge its share of national and international markets, electrical engineers are certain to play an important role in improving productivity through automation, increased efficiency, and new technologies.

Electrical and computer engineers work in research, design, development, manufacturing, sales, market analysis, consulting, field service, and management. They are employed in computer, semiconductor, software, aerospace, telecommunication, medical, radio, television, and power industries.

**Undergraduate Program**

The program’s objective is to produce graduates who:

- contribute to society in a broad range of careers;
- flourish professionally in an increasingly international and rapidly changing world;
- effectively understand, use, and develop modern electrical and computer engineering technologies and concepts; and
- achieve success throughout their careers.

**Bachelor of Science in Engineering**

The College of Engineering adopted new undergraduate program curricula effective for all new students beginning fall semester 2002. The new curricula are described in this Catalog. Students who began their engineering studies before fall semester 2002 can continue to follow the old curricula (described in pre-2002 editions of the Catalog, existing program curriculum sheets, and degree evaluation forms), with possible course substitutions. They also may choose to change to the new curricula under conditions defined by each program and available from the college’s Student Development Center.

The electrical engineering curriculum provides technical depth and breadth as well as flexibility and the opportunity for students to customize their programs according to their own goals. Students complete a common core of electrical and computer engineering courses, then select one of three tracks. The electrical engineering track provides a broad background in electrical engineering concepts and practice, preparing students for careers in a wide range of industries and organizations. The computer engineering track provides focus and depth for students preparing for careers or graduate study in computer systems hardware or software engineering. The information engineering track prepares students for careers in advanced study in the telecommunications or information technology.

The B.S.E. in electrical engineering requires a minimum of 128 s.h. of credit. The curriculum covers four major stems: mathematics and basic sciences, engineering topics, elective focus area, and general education (15 s.h. of humanities and social science courses). Also required are the background courses Engineering Problem Solving I-II and Accelerated Rhetoric. The electrical engineering curriculum includes five required track courses and two track electives.

Some courses in the curriculum are prerequisites to others. Students who take courses in the following order satisfy the prerequisite requirements automatically. Students who do not follow this sequence still must satisfy all course prerequisites.

General education component courses must be selected to satisfy the requirements of the College of Engineering. See “General Education Component” in the College of Engineering introductory section of the Catalog.

Elec elective area courses must be selected according to guidelines established by the Department of Electrical and Computer Engineering. See “Elec Elective Focus Area” following the curriculum list.

**FIRST YEAR**

**First Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>004:011</td>
<td>Principles of Chemistry I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>010:003</td>
<td>Accelerated Rhetoric (or 010:001-010:002)</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22M:031</td>
<td>Engineering Mathematics I: Single Variable Calculus</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>055:000</td>
<td>Electrical Engineering Orientation Seminar</td>
<td>0 s.h.</td>
</tr>
<tr>
<td>059:005</td>
<td>Engineering Problem Solving I</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Second Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>22M:032</td>
<td>Engineering Mathematics II: Multivariable Calculus</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22M:033</td>
<td>Engineering Mathematics III: Matrix Algebra</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>029:081</td>
<td>Introductory Physics I</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>059:006</td>
<td>Engineering Problem Solving II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>059:007</td>
<td>Engineering Fundamentals I: Statics</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>059:008</td>
<td>Engineering Fundamentals II: Electrical Circuits</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>059:009</td>
<td>Engineering Fundamentals III: Thermodynamics</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**SECOND YEAR**

**First Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td>22M:034</td>
<td>Engineering Mathematics IV: Differential Equations</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>029:082</td>
<td>Introductory Physics II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>059:007</td>
<td>Engineering Fundamentals I: Statics</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>059:008</td>
<td>Engineering Fundamentals II: Electrical Circuits</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>059:009</td>
<td>Engineering Fundamentals III: Thermodynamics</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Second Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>22M:037</td>
<td>Engineering Mathematics V: Vector Calculus</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>055:040</td>
<td>Linear Systems I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>057:017</td>
<td>Computers in Engineering</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>057:018</td>
<td>Principles of Electronic Instrumentation</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>059:089</td>
<td>Senior Electrical Engineering Design</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**THIRD YEAR**

**First Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>22S:039</td>
<td>Probability and Statistics for the Engineering and Physical Sciences</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>055:032</td>
<td>Introduction to Digital Design</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>055:070</td>
<td>Electromagnetic Theory</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>055:091</td>
<td>Professional Seminar: Electrical Engineering</td>
<td>0 s.h.</td>
</tr>
<tr>
<td>055:088</td>
<td>Principles of Electrical Engineering Design</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Fourth Year**

**First Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>055:089</td>
<td>Senior Electrical Engineering Design</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>055:090</td>
<td>Senior Electrical Engineering Design</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Second Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>055:088</td>
<td>Principles of Electrical Engineering Design</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Electrical Engineering Track**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>22C:019</td>
<td>Discrete Structures</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22C:031</td>
<td>Algorithms</td>
<td>3 s.h.</td>
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<tr>
<td>055:033</td>
<td>Introduction to Software Design</td>
<td>3 s.h.</td>
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<td>055:035</td>
<td>Computer Architecture and Organization</td>
<td>3 s.h.</td>
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<tr>
<td>055:036</td>
<td>Embedded Systems and Systems Software</td>
<td>3 s.h.</td>
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**Information Engineering Track**

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>055:043</td>
<td>Linear Systems II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>055:046</td>
<td>Digital Signal Processing</td>
<td>3 s.h.</td>
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<td>055:050</td>
<td>Communication Systems</td>
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<tr>
<td>055:051</td>
<td>Randomness and Information</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>055:054</td>
<td>Communication Networks</td>
<td>3 s.h.</td>
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</tbody>
</table>

**Track Breadth and Depth Electives**

Students choose one track breadth elective from the courses required for one of the other two tracks.

Students also choose one track depth elective, which must be an advanced course in a subject area within the student's track—normally a 100-level course for which one of the required track courses is a prerequisite. For a complete list of depth electives for each track, see the ECE Undergraduate Handbook.

**Elective Focus Area**

The elective focus area provides access to the broad range of course work in the department, the college, and the University. Each student works with his or her academic adviser to develop an elective focus area plan tailored to his or her own goals—for example, additional technical depth in one or more areas of electrical engineering.
engineering, completion of a minor in a relevant area, completion of the certificate in technological entrepreneurship, or pursuit of interdisciplinary experience.

The elective focus area plan must include at least 15 s.h. of technical course work, at least 6 s.h. of which must be 100-level electrical and computer engineering courses. Students earning a minor in business or a Certificate in Technical Entrepreneurship may apply up to 6 s.h. of the required technical course work to the minor or certificate. All students must demonstrate an ability to work on multidisciplinary teams.

All elective focus area plans must be approved in advance by the department.

For more information about elective focus areas, see the College of Engineering introductory section of the Catalog. For more information about the department's elective focus area guidelines, see the ECE Undergraduate Handbook or the Department of Electrical and Computer Engineering web site.

Graduate Programs

Electrical and computer engineering offers curricula leading to the Master of Science and Doctor of Philosophy degrees. Thesis and nonthesis M.S. programs are available; either may precede Ph.D. studies. An M.S. subtrack in software engineering also is available. Excellence in scholarship and research is stimulated by close contact with the faculty throughout the period of graduate study and through programs tailored to fit individual needs.

Students select an adviser and, with the adviser, plan an individual program bounded only by a few broad guidelines imposed by the Graduate College and by the program. Close interdisciplinary ties with other departments exist both within and outside the college, especially with the Departments of Physics and Astronomy, Computer Science, Mechanical and Industrial Engineering, and Biomedical Engineering, and the Carver College of Medicine. The principal areas of concentration are waves and materials, computer systems, wireless communications, signal and image processing, computational genomics, and control systems and robotics.

Research and Study Areas

WAVES AND MATERIALS

Research in this area is carried out primarily in the Iowa Advanced Technology Laboratories, a well-equipped, modern facility two blocks from the Engineering Building, and in Van Allen Hall. Current research topics are optical and electronic properties of semiconductors, semiconductor devices, electro-optics, nonlinear optics, nonlinear wave propagation in plasmas, nanotechnology, and medical devices.

Much work is done in collaboration with other departments, including physics and astronomy, chemistry, internal medicine, and neurosurgery. Facilities include two molecular beam epitaxy reactors (in physics and astronomy), a microfabrication laboratory with micrometer resolution capabilities, electrical characterization capability to 22 GHz, several Ti:sapphire lasers, a mid-infrared optical parametric oscillator, and plasma equipment for nonlinear wave plasma interaction studies.

Examples of current projects are the design and fabrication of diode lasers based on the bandgap engineering of antimony and arsenic-based III-V compound semiconductors, phase control of laser arrays, development of an all-optical power equalizer, characterization of quantum well devices, nonlinear waveguide devices, development of a noncontact method to measure transport properties, plasma and optical soliton excitation and propagation, development of cellular probes, and a noninvasive glucose sensor for medical research.

COMPUTER SYSTEMS AND VLSI CIRCUITS

Research emphasis is directed toward design and test of very-large-scale integrated (VLSI) circuits, high-performance computing and networking, and intelligent agent systems. Research in the VLSI area involves development of techniques and algorithms that assist in synthesis and testing of large-scale logic circuits, and incorporation of these techniques into computer-aided design tools. Current projects include new pattern sources for built-in-test, efficient test pattern generation, generation of compact test sets, and methods for reducing test data volumes.

High-performance computing research involves development of collaborative and parallel computing environments and associated software tools, and use of these facilities and tools in varied application domains, including image processing and computational biology. Current work in networking focuses on protocols and layer-integration schemes that support high-performance wireless networking, and on control and coordination of mobile ad hoc networks. Current research facilities in these areas include several large cluster computers and an experimental asynchronous transfer mode (ATM) network.

Agent technologies research is directed toward development of autonomous software and robotic agents capable of engaging in distributed collaborations that support varied application domains. Current work focuses on development of methods to reconcile diverse agent ontologies and application of agent technologies to medically related problems, including collaborative classification of macular degeneration characteristics and computer engineering education.

Departmental facilities that support this work include a network of SUN, HP, SGI, and Linux workstations, and high-speed network connections to collegiate, University, and national facilities, including an NSF-funded, dedicated ATM network of high-performance workstations, CSS (the college's computing service), the University's Information Technology Services, national supercomputer centers, federal laboratories, and facilities at other universities.

BIONFORMATICS AND COMPUTATIONAL GENOMICS

The Coordinated Lab for Computational Genomics (CLCG) is a collaborative effort of the Department of Electrical and Computer Engineering and the Carver College of Medicine. The laboratory's joint research projects include clustering and cDNA/EST sequencing, web-based tools for genetic linkage analysis, gene discovery and mapping, microarray hybridization, gene expression, and high-throughput genotyping. This lab is recognized worldwide for its contribution to the Human Genome Project.

The CLCG's computational infrastructure consists of more than 126 computing systems, 178 CPUs, 100+ gigabytes of RAM, and 2.5 terabytes of disk space. The laboratory has four separate dedicated server clusters of 36, 32, 18, and 8 CPUs running Linux operating systems. This includes four dedicated, dual fiber channel, redundant disk storage systems (RAID) of 412 GB usable. CLCG is wired for 10- and 100-megabit Ethernet networking.

SIGNAL AND IMAGE PROCESSING

Image processing and basic and applied signal processing are areas of emphasis. A digital signal processing laboratory and an image analysis laboratory are available to support this research. Collaborative research with faculty in the Departments of Radiology, Neurology, Psychiatry, Internal Medicine, and Biomedical Engineering is directed at quantitative analysis of medical images.

In the area of signal processing, current projects include analysis and design of efficient adaptive algorithms for signal processing, efficient coding and transmission of speech, speech processing aids for the hearing-impaired, robust equalization of uncertain channels, application of neural networks to communications systems, multirate signal processing, and subband coding and channel equalization.

Current projects in image processing include automated detection of vessel borders and coronary trees in angiograms using artificial intelligence techniques, detection and tracking of cardiac motion from magnetic resonance images, analysis of cardiac motion patterns, automated analysis of intravascular ultrasound images, semantic approaches to segmentation of three-dimensional brain images based on genetic optimization algorithms, knowledge-based techniques for identification of pulmonary airway trees from CT images, and three-dimensional segmentation techniques for quantification of lung disease.

Additional projects include medical image registration using deformable shape models; modeling normal versus abnormal anatomical shape as imaged via MRI, CT, and PET; tracking growth and regression of cancer tumors before and after treatment; 3-D measurement and visualization of normal and abnormal infant skull shape; development of parallel algorithms to reduce computation time; and novel sampling and reconstruction techniques for magnetic resonance imaging acquisitions.

The E.C.E. Medical Image Analysis Laboratory is a specialized facility for digital image processing equipped with state-of-the-art equipment. It is equipped with two Silicon Graphic Onyx, three Alpha Linux, and 15 high-end dual-CPU Windows XP and Linux computers with 4 GB of RAM each. High-quality 1/1 compression for image digitization and visualization are available. High-capacity computer storage disk arrays are in use, with over 900 GB online hard disk space.
CONTROL SYSTEMS AND ROBOTICS

Current research emphasizes optimal, adaptive, digital, robust and stochastic control and the control of discrete event dynamical systems. Recent work has concerned the estimation, identification, and robust control of linear and nonlinear dynamical systems; set membership identification, control over wireless communication channels; coordinated fault tolerant control of unmanned vehicles; use of control theory to analyze distributed computing, communications, and manufacturing systems; interplay between communications and control; design of fast digital controllers using subband coding; and multirate control systems.

WIRELESS COMMUNICATIONS SYSTEMS

Current research activities in communication systems focus on design and analysis of receivers for digital wireless communications, especially on the development of effective and practical receivers for multi-user wireless cellular systems in multipath channels. Projects include the removal of intersymbol interference by blind identification/equalization, multi-user detection in CDMA without power control, receiver structures for 3G wireless cellular systems, ad hoc wireless networks, space time coding; resource allocation in OFDM systems; and scheduling in wireless networks. Fundamental theoretical issues and practical implementation are emphasized.

Master of Science

The department offers the M.S. with and without thesis. The thesis option requires 30 s.h. of course work, including at least 12 s.h. from an approved list of courses in electrical and computer engineering. The nonthesis option requires 36 s.h. of course work, with a minimum of 18 s.h. from an approved list of courses in electrical and computer engineering. M.S. students may not count courses required for the B.S.E. in electrical and computer engineering toward the semester-hour requirements. Students who choose the thesis option must earn 6 s.h. in 055:199 Research: Electrical and Computer Engineering, M.S. Thesis. Students pursuing the nonthesis option may count no more than 3 s.h. of independent study toward the 36 s.h. total.

Candidates for the master's degree in electrical and computer engineering also must successfully complete a final examination, which is conducted by a committee of at least three faculty members. One part of the final examination for thesis candidates must consist of an oral defense of the thesis. At the time of graduation, candidates for the master's degree must have a cumulative g.p.a. of at least 3.00.

M.S. Subtrack in Software Engineering

The department offers an M.S. subtrack in software engineering, in both thesis and nonthesis options. Successful completion of the subtrack results in the designation "with specialization in software engineering" on the student's transcript.

The nonthesis subtrack requires completion of a minimum of 36 s.h.; the thesis option requires 30 s.h. Both require completion of the following four software engineering core courses.

- 055:180 Fundamentals of Software Engineering 3 s.h.
- 055:181 Formal Methods in Software Engineering 3 s.h.
- 055:182 Software Engineering Languages and Tools 3 s.h.
- 055:183 Software Engineering Project 3 s.h.

In addition, both options require completion of at least three courses chosen from the following.

- 22C:162 Advanced Operating Systems 3 s.h.
- 055:131 Introduction to VLSI Design 3 s.h.
- 055:132 High Performance Computer Architecture 3 s.h.
- 055:133 Graph Algorithms and Combinatorial Optimization 3 s.h.
- 055:134 Computer Communications 3 s.h.
- 055:185 Autonomous Agents and Multiagent Systems 3 s.h.

An additional 6 s.h. of course work from the approved list of electrical and computer engineering courses is required for the nonthesis option and 3 s.h. for the thesis option. All rules for additional credit and the M.S. final examination are the same as for the general M.S. program.

Doctor of Philosophy

Ph.D. students must complete at least 72 s.h. of credit in a program acceptable to the adviser and approved by the graduate committee. At least 45 s.h. must be earned in formal courses (not thesis or other independent study), including 30 s.h. from an approved list of courses in electrical and computer engineering.

Ph.D. students take a Ph.D. qualifying examination and a Ph.D. comprehensive examination and then must successfully complete a research program that includes a minimum of 18 s.h. of Ph.D. research and culminates in the preparation of a thesis. Finally, the candidate must present a successful oral defense of the thesis.

Ph.D. students must maintain a cumulative g.p.a. of 3.25 or higher in all graduate course work.

Admission to the Ph.D. program requires successful completion of the Ph.D. qualifying examination. This all-day written exam is given once a year, late in the spring semester. It covers four areas chosen by the student from a list of six. Students normally are expected to take the qualifying examination within the first 30 s.h. of graduate study. A cumulative g.p.a. of at least 3.25 is required for admittance to the exam. In the event of failure, the examination may be retaken only once, at its next available offering.

Following successful completion of the Ph.D. qualifying examination and invitation into the Ph.D. program, a student must complete a three-part Ph.D. comprehensive examination consisting of a “take-home” exam set by the student’s adviser and Ph.D. committee, preparation of a written thesis proposal, and an oral exam that includes a presentation and defense of the proposal. A minimum of six months must separate completion of the first and last portions of the comprehensive examination. The final requirement for completion of the Ph.D. program is the preparation and successful defense of the Ph.D. thesis. This must be completed no sooner than six months but no longer than three years after completion of the comprehensive examination.

Admission

Admission to the graduate program requires a g.p.a. of at least 3.00 for M.S. students and at least 3.25 for Ph.D. students on all courses in electrical and computer engineering, mathematics, and physics. M.S. students with a g.p.a. lower than 3.00 but higher than 2.75 in courses in electrical and computer engineering, mathematics, and physics may be admitted on probation, if warranted by other aspects of their academic records.

Students with baccalaureate degrees in related areas (e.g., physics, mathematics, and computer science) may be admitted on a conditional basis. In such cases, students may need to complete additional course work without earning graduate credit before being granted regular admission status.

Each application is reviewed on an individual basis. Extenuating circumstances may permit deviations from the usual standards.

Financial Support

A number of fellowships, traineeships, assistantships, scholarships, and industrial grants are available to graduate students who qualify. These are awarded on a competitive basis.

Special Facilities and Laboratories

Undergraduate Core

Electrical and computer engineering provides core instruction for the college in electrical circuits, electronics, instrumentation, and computers. A key part of this core teaching responsibility lies in providing students with an early opportunity to use engineering laboratory instrumentation.

Undergraduate Laboratories

The undergraduate laboratories include facilities for the study of electrical and electronic circuits, signals and systems, microprocessor-based computers and systems, measurement automation, communication systems, control systems, computer-aided design of VLSI circuits, image processing, robotics, and optics.

An electronic classroom devoted to image acquisition, processing, transmission, and analysis is the newest addition to the list of state-of-the-art facilities available for undergraduate and graduate education. It is equipped with high-end Hewlett Packard UNIX workstations facilitates new revolutionary approaches to engineering education. Class material is taught in a collaborative learning environment in which students participate during lectures, acquiring practical hands-on experience.
Graduate Facilities and Laboratories

The department has laboratories intended primarily for graduate research in the areas of parallel processing, image processing, CAD for VLSI circuits, software engineering, electro-optics, plasma physics, control systems, cardiovascular image processing, and wireless communication. A network of SUN, IBM, and HP workstations and server nodes provides computational support. This network is tied to the College of Engineering facilities, which consist of more than 100 Hewlett-Packard workstations. Connections are provided to central utilities and networked facilities. Through cooperative arrangements, advanced computing facilities at national supercomputing centers, federal laboratories, and other universities are available for graduate research.

Courses

Special Topics

055:000 Cooperative Education Training
   Assignment: Electrical Engineering 0 s.h.
   Electrical engineering students participating in the Cooperative Education Program may take this course during work assignment periods; registration provides a record of participation in the program on the student’s permanent record. Prerequisites: admission to Cooperative Education Program and consent of cooperative faculty advisor.

055:088 Principles of Electrical Engineering Design 3 s.h.
   Design problems requiring integration of subject matter from other required electrical and computer engineering courses. Prerequisite: senior standing.

055:089 Senior Electrical Engineering Design 3 s.h.
   Individual or team project; demonstration of completed project and formal engineering report. Prerequisite: senior standing. Corequisite: 055:088.

055:090 Electrical Engineering Orientation Seminar 0 s.h.
   Introduction to the electrical and computer engineering curriculum and profession; ethics and professionalism in the classroom and workplace. Prerequisite: first-year or transfer standing.

055:091 Professional Seminar: Electrical Engineering 0 s.h.
   Professional aspects of electrical engineering presented through lectures and discussions by guest speakers, field trips, films, panel discussions. Repeatable. Prerequisite: junior standing.

   Individual projects for electrical engineering undergraduate students: laboratory study, engineering design project, analysis and design of an engineering system, computer software development, research. Prerequisite: consent of supervising faculty advisor.

Digital Systems, Computers, Software Engineering

055:032 Introduction to Digital Design 3 s.h.
   Modern design and analysis of digital switching circuits; combinational logic; sequential circuits and system controllers; interfacing and busing techniques; design methodologies using medium- and large-scale integrated circuits; lab arranged. Prerequisite: sophomore standing.

055:033 Introduction to Software Design 3 s.h.
   Design of software for engineering systems; algorithm design and structured programming; data structures; introduction to object-oriented programming using JAVA; applications to engineering problems; lab arranged. Prerequisite: 057:017.

055:035 Computer Architecture and Organization 3 s.h.
   Basic concepts; computer evolution; register transfer level design; simulation techniques; instruction sets (CISC and RISC); assembly language programming; ALU design; arithmetic algorithms and realization of arithmetic functions, hardened and microprogrammed control, memory hierarchies, virtual memory, cache memory, memory systems, pipelining, DMA, I/O,Cache; introduction to high-performance techniques, pipelining, multiprocessing; introduction to hardware description languages (Verilog, VHDL); students design and simulate a simple processor. Offered fall semesters. Prerequisites: 055:032 and 055:033.

055:036 Embedded Systems and Systems Software 3 s.h.
   Microprocessors and microcontrollers as components in embedded systems; system design process; microcontroller/processor interfaces; interrupts and traps; memory and device interfacing, low-level and high-level software design for embedded systems; examples of embedded system architecture and design, fundamentals of operating systems; tasks and processes; context switching and scheduling; memory and file management, interprocess communication; device drivers. Prerequisite: 057:017.

055:121 Introduction to Bioinformatics 4 s.h.
   Same as 002:169, 051:121.

055:122 Computational Genomics 3 s.h.

055:130 Switching Theory 3 s.h.
   Switching algebra; combinational circuits—hazards, minimization, minterms, sequential circuits—critical races, essential hazards, fundamental mode, pulse-mode, synchronous circuits state assignment, state reduction, input-output experiments. Prerequisite: 055:032.

055:131 Introduction to VLSI Design 3 s.h.
   MOS devices and circuits; transistor level theory; MOS processing technologies, MOS device models, timing and power considerations, performance issues, scaling, various logic schemes; circuit techniques, clocking strategies, I/O structures; design styles; ASIC design, MOS subsystem design; system case studies, use of electronic design automation tools, introduction to hardware description languages, design synthesis, design projects; lab. Prerequisites: 055:032 and 055:041.

055:132 High Performance Computer Architecture 3 s.h.
   Problems involved in designing and analyzing current machine architectures using hardware description language (HDL) simulation and analysis, hierarchical memory design, pipeline processing, vectorial, parallel computations, multiprocessor architectures and parallel algorithm design techniques; evaluation methods to determine relationship between computer design and design goals. Prerequisites: 22C:112 or 22C:113 or 055:032, and 055:035. Same as 22C:160.

055:133 Graph Algorithms and Combinatorial Optimization 3 s.h.
   Combinatorial optimization problems; time complexity, graph theory and algorithms; combinatorial optimization algorithms; complexity theory and NP-completeness; approximation algorithms; greedy algorithms and matroids. Prerequisite: 055:033 or equivalent.

055:134 Computer Communications 3 s.h.
   Computer networks, ISO model, network topology, communication of digital data, data link control, errors and error control, point-to-point networks, broadcast networks, local network architecture, transport services, wireless networking, internetworking, user services. Prerequisite: senior standing in electrical and computer engineering or computer science; and 22B:039 or 22S:120. Same as 22C:168.

055:137 Digital Signal Processor Based Systems 3 s.h.
   Design of digital signal processor-based engineering systems; architecture of digital signal processor, cross-development environment; assembly, high-level language programming; interfacing with external systems, data acquisition, interfacing; priority interrupts; simulations in image display, signal processing, control systems. Prerequisite: 057:017.

055:138 Testing Digital Logic Circuits 3 s.h.
   Logic models for faults; fault detection in combinational and sequential circuits; MOS transistor testing and assembly, random testing, compressed data testing, built-in testing. Prerequisite: 055:032.

055:180 Fundamentals of Software Engineering 3 s.h.
   Problem analysis, requirements specification, design, implementation, testing/maintenance, integration, project management, human factors; management and technical communication; design methodologies; software validation and verification, group project. Prerequisite: senior standing in electrical and computer engineering or computer science. Same as 22C:180.

055:181 Formal Methods in Software Engineering 3 s.h.
   Formal models and methods and their application in software engineering processes; operational, algebraic, model-based and property-based specification methods; verification of consistency and completeness of specifications; properties of software; specification construction and verification using method-based tools. Prerequisite: consent of instructor. Same as 22C:181.

055:182 Software Engineering Languages and Tools 3 s.h.
   Object-oriented programming concepts (objects, classes, single and multiple inheritance, polymorphism and dynamic binding); object-oriented languages and environments such as JAVA and Eiffel; introduction to design patterns and software architectures such as Model View Controller; application frameworks, component-based software development; use of standard component frameworks such as CORBA and COM/DCOM. Prerequisites: 22C:180, experience in an object-oriented programming language, and consent of instructor. Same as 22C:182.

055:183 Software Engineering Project 3 s.h.
   Team software development project using concepts and methodologies learned in earlier software engineering classes; practical aspects of large-scale software development. Prerequisites: 22C:180 and 22C:182, or consent of instructor. Same as 22C:183.

055:185 Autonomous Agents and Multiagent Systems 3 s.h.
   Principles and architectures of autonomous agents and multiagent systems; distributed computing platforms and programming; knowledge representation and reasoning subsystems; agent communication language design; planning, coordination, adaptation, and learning in a multiagent system. Prerequisites: 055:033 and 057:017.

055:230 Advanced Logic Synthesis 3 s.h.
   Synthesis of multiple output functions; finite state machines; algebraic factoring; testability preserving transformations; design verification; high level synthesis. Prerequisites: 055:130 and 055:131, or consent of instructor.

Signal Processing

055:040 Linear Systems I 3 s.h.
   Introduction to continuous and discrete time signals and systems with emphasis on Fourier analysis; examples of signals and systems; notion of state and finite state machines; causality, linearity and time invariance; Fourier transforms; frequency response; convolution; IIR and FIR filters, continuous and discrete Fourier transforms; sampling and reconstruction; stability. Prerequisites: 22M:033 and 22M:034.

055:041 Electronic Circuits 4 s.h.
   Design and analysis of FET and BJT amplifiers; low, midrange, high frequency analysis; difference amplifiers; feedback amplifiers; SPICE simulation; power amplifiers; digital logic families. Prerequisite: 057:018.

055:042 Signals and Systems 3 s.h.

055:043 Linear Systems II 3 s.h.
   Continuation of 055:040, emphasis on Laplace and Z-transform analysis; unilateral and bilateral Laplace transform region of convergence, stability; block diagram algebra; first- and second-order continuous and discrete time systems; Bode plots. Prerequisite: 055:040.

055:046 Digital Signal Processing 3 s.h.
   Theory and techniques used in representation, analysis, and design of discrete-time signals, system concepts in frequency and sampling domains; discrete-time processing of continuous-time signals; FIR and IIR digital filter theory; design and realization techniques; theory and application of Fourier transforms. Prerequisite: 055:043.

055:143 Linear Integrated Electronics 3 s.h.
   Advanced topics in linear integrated circuits; active load concepts, noise models, analog voltage multipliers, phase-locked loops; case studies of op amps, regulators, MOS amplifier design. Prerequisite: 055:041.

055:144 Digital Integrated Electronics 3 s.h.
   Principles of operation of digital integrated circuits; logic families; use of four-state transistor models; sources of propagation delay; advanced design concepts; SPICE modeling; transmission line effects. Prerequisite: 055:041.

055:154 Pattern Recognition 3 s.h.
   Mathematical foundations and practical techniques of pattern recognition, adaptation, learning, and application of pattern recognition; syntactic pattern recognition, neural networks for recognition; fuzzy logic for recognition; nonstandard and compound approach. Prerequisite: 055:144.

055:164 Digital Signal Processing 3 s.h.
   Theory, techniques used in representing discrete-time signals; system concepts in frequency and sampling domains; FIR and IIR
055:148 Digital Image Processing 3 s.h.
Mathematical foundations and practical techniques for digital image manipulation; image sampling, compression, enhancement, linear and nonlinear filtering and restoration; Fourier domain analysis; image segmentation.

055:245 Magnetic Resonance Imaging Systems 3 s.h.
Mathematical foundations and practical implementation for magnetic resonance imaging (MRI); principles of image formation using Fourier and projection techniques, non-Cartesian sampling, tomographic image reconstruction, sources of artifacts and their correction. Prerequisites: 055:148 and 055:149, or equivalents.

055:247 Image Analysis and Understanding 3 s.h.
Mathematical foundations and practical techniques of digital image analysis and understanding, image segmentation (from edges and regions), object description (from boundaries, regions, scale, scale-invariant descriptors, 3-D shape, texture) pattern recognition (statistical and syntactic methods, cluster analysis), image understanding (knowledge representation, control strategies, matching, context, semantics), image analysis and understanding systems; lab arranged. Prerequisites: 055:140 and 055:148.

055:248 Advanced Digital Image Processing 3 s.h.
Visual perception of images (light perception, monochrome vision model, color vision model), advanced image techniques (FICT, Hadamard, Haar, Karhunen-Loeve transforms), image restoration (modeling, spatial, spectral, image restoration techniques); geometrical image modification; 3-D imaging; morphological image processing (connectivity, hit-or-miss transformations, thinning, dilation, erosion, closing, opening). Prerequisites: 055:146 and 055:148.

055:050 Communication Systems 3 s.h.
Fourier transform review, Hilbert transforms; narrow band signals, bandpass filters; amplitude and angle modulation systems; random processes, stationarity, ergodicity, noise, noise figure, noise analysis of CW systems; pulse analog modulation, design principles, lab arranged. Prerequisite: 225:039.

055:051 Randomness and Information 3 s.h.
Introduction to random sequences and processes and their use in modeling information bearing signals and noise; basic concepts from probability theory; random variables and vectors, discrete, continuous, and conditional distribution and density functions; independence; expectation; random sequence and process properties and examples; stationarity, correlation, and power spectral density; linear filtering; source coding; signal quantization, waveform coding. Prerequisite: 225:039. Corequisite: 055:050.

055:054 Communication Networks 3 s.h.
Communication networks; network architecture, applications, network programming interfaces (e.g., sockets), transmission control, routing, data link protocols, local area networks, emerging high-speed networks, multimedia networks, network security, Internet protocol; technology examples. Prerequisite: 057:017. Corequisite: 22S:039.

055:150 Communication Theory 3 s.h.
Random processes, source coding, digital transmission at baseband, optimum receiver design for Gaussian noise, error probability and power spectrum analysis, signal design for bandlimited channels, digital carrier modulation, bandwidth/energy probability tradeoffs, coding for error detection and correction. Prerequisite: 055:050.

055:151 Statistical Communication Theory 3 s.h.
Quantitative measure of information; source encoding, error detecting coding, block and convolutional codes, design of hardware and software implementations; Viterbi decoding. Prerequisite: 055:050.

Controls

055:000 Control Systems 3 s.h.
Fundamental concepts of linear feedback control, mathematical modeling, transfer functions, system response, feedback effects, stability, root-locus and frequency response analysis and design, compensation, lab arranged. Prerequisite: 055:043.

055:060 Electromechanical Systems 3 s.h.
Electromechanical control principles; basic rotating machines; direct-current machines; alternating-current machines; power electronics for motor control. Prerequisite: 055:070.

055:008 Power Systems Analysis 3 s.h.
Fundamental principles of electrical power systems, transmission line parameters, per-unit calculations for systems with machines and transformers, matrix methods for analysis and design, load-flow calculations.

055:160 Control Theory 3 s.h.
State space approach; controllability, observability, canonical forms; design of Luenberger observers; feedback control via pole placement; stability, minimal realization; advanced topics. Prerequisite: 055:060. Same as 058:133.

055:163 Random Processes: Control and Communication 3 s.h.
Probability, vector random variables, expectations and transformations; random sequences and limit theorems; discrete and continuous random processes; Poisson and multivariate Gaussian processes; Markov chains; spectral analysis, estimation, reliability, other applications. Prerequisite: 055:050.

055:164 Computer-Based Control Systems 3 s.h.
Discrete and digital control systems; application of computers in control; sampling theorems; discrete time systems models; analysis and design of discrete time systems; control design by state variable and input/output methods; advanced topics in digital controls; lab. Prerequisite: 055:060. Same as 058:134.

055:165 Introduction to Robotics 3 s.h.
Coordinated transformation kinematics, inverse kinematics; manipulator dynamics; trajectory planning, manipulator control, force and compliance control; laboratory projects. Prerequisite: 055:060 or consent of instructor.

Waves and Materials

055:070 Electromagnetic Theory 3 s.h.
Electric and magnetic forces; Maxwell’s equations, wave propagation; applications, including radiation, transmission lines, circuit theory. Prerequisite: 22M:037 and 029:092.

055:072 Electrical Engineering Materials and Devices 3 s.h.
Fundamentals of semiconductor physics and devices; principles of the p-n junction, bipolar transistor, field effect transistor. Prerequisites: 029:082 and 055:041.

055:170 Advanced Electromagnetic Theory 3 s.h.
Time varying fields; plane wave propagation, reflection, refraction, waves in anisotropic media transmission lines, impedance matching, Smith chart; metallic and dielectric wave guides; resonators; antennas, antenna arrays. Prerequisite: 055:070.

055:172 Solid State Physical Electronics 3 s.h.
Semiconductor physics, semiconducting devices; elementary quantum mechanics, statistics; transport; bipolar, MOS transistors; physics of device operation as it relates to circuit design. Prerequisites: 029:083 and 055:072.

055:173 Introductory Solid State Physics 3 s.h.
Phenomena associated with solid state; classification of solids and crystal structures, electronic and vibrational properties in solids; thermal, optical, magnetic, dielectric properties of solids. Same as 029:193.

055:177 Electromagnetic Foundations of Optics 3 s.h.
Same as 029:180.

055:178 Optical Signal Processing 3 s.h.
Linear systems description of optical propagation; diffraction and angular plane wave spectrum; lens as Fourier transformers, lens configurations as generalized optical processors; lasers, coherence, spatial frequency analysis; holography; correlators, correlates, matched filters; synthetic aperture radar; optical computing. Prerequisite: 055:070. Same as 029:184.

055:179 Electro-Optics 3 s.h.
Wave equation solutions; optical birefringence; finite beam propagation in free space, dielectric waveguides and fibers; optical resonators; nonlinear phenomena; electro-optical modulation; optical detection, noise, application to communication systems. Prerequisite: 055:070. Same as 029:182.

055:227 Quantum Electronics 3 s.h.

055:274 Laser Principles 3 s.h.
Laser theory, stimulated emission, dispersion theory, broadband mechanisms, rate equations, gain saturation, optical resonators, mode-locking, Q-switching techniques, laser of various types, modes of operation. Prerequisite: 055:170 or equivalent. Same as 029:224.

055:276 Nonlinear Optics 3 s.h.
Principally classical treatment of second- and third-order optical nonlinearities; phase matching, harmonic generation, three and four wave mixing, self-focusing, self-phase modulation, stimulated scattering of light, applications. Prerequisite: 055:170. Same as 029:223.

Graduate Seminars, Advanced Topics, Research

055:191 Graduate Seminar: Electrical and Computer Engineering 0 s.h.
Presentation and discussion of recent advances and research in electrical and computer engineering by guest lecturers, faculty, students. Prerequisite: graduate standing.

055:193 Contemporary Topics in Electrical and Computer Engineering 0 s.h.
New topics or areas of study not offered in other electrical and computer engineering courses; based on faculty/student interest; not available for individual study. Prerequisite: senior standing.

055:198 Individual Investigations: Electrical and Computer Engineering 0 s.h.
Individual projects for electrical and computer engineering graduate students; laboratory study, engineering design project, analysis and simulation of an engineering system, computer software development, research. Prerequisites: graduate standing and consent of faculty advisor.

055:199 Research: Electrical and Computer Engineering M.S. Thesis 0 s.h.
Experimental and/or analytical investigation of approved topic for partial fulfillment of requirements for M.S. degree with thesis in electrical and computer engineering. Prerequisites: graduate standing and consent of faculty advisor.

055:291 Seminar: Plasma Physics 0 s.h.
Discussion of current research. Prerequisite: consent of instructor. Same as 029:261.

055:295 Advanced Topics in Electrical and Computer Engineering 0 s.h.
Discussion of current literature in electrical and computer engineering. Prerequisite: consent of instructor.

055:299 Research: Electrical and Computer Engineering Ph.D. Thesis 0 s.h.
Experimental and/or analytical investigation of approved topic for partial fulfillment of requirements for Ph.D. in electrical and computer engineering. Prerequisite: consent of faculty advisor.

Chair: Jeffrey S. Marshall
Associate professors: Karim Abdel-Malek, John D. Lee, Ching-Lon Lin, Sharif Rahman, Thomas Schnell, H.S. Udaykumar
Assistant professors: Linda N. Boyle, Yong Chen, Nagi Gebreel, Jia Lu, Albert Raitzer, Geb W. Thomas, Shaoping Xiao

Undergraduate degree: B.S.E. in Mechanical Engineering, Industrial Engineering
Graduate degrees: M.S., Ph.D. in Mechanical Engineering, Industrial Engineering
Web site: http://www.mie.engineering.uiowa.edu/

The Department of Mechanical and Industrial Engineering was established in 2001 when the former mechanical engineering and industrial
Engineering departments joined together. The department offers distinct undergraduate and graduate degrees and research programs in both mechanical engineering and industrial engineering.

**Mechanical Engineering**

Mechanical engineering is broadly concerned with energy, manufacturing, and design of machines. Mechanical engineers conceive, plan, design, and direct the manufacture, distribution, and operation of a wide variety of devices, machines, and systems—including complex human-machine systems—for energy conversion, environmental control, materials processing, transportation, materials handling, and other purposes. A description of the field includes thermal-fluids engineering and mechanical systems engineering.

Thermal-fluid phenomena occur in many engineering systems and devices, such as aircraft; automobiles; off-road vehicles; ships; gas turbines; heat exchangers; material processes; heating, ventilating, air-conditioning, and refrigerating systems; hydraulic turbines; airbag inflators; fuel cells; environmental control devices; and biomedical systems.

Mechanical systems and machines are the foundations of human technology. Examples of such systems and devices are manufacturing equipment, medical equipment, automobiles, tractors, aircraft, ships, home appliances, packaging machinery, and robots.

Mechanical engineers find a wide variety of career opportunities in industry, government, and education. Mechanical engineers form an integral part of most industries, including aerospace firms, energy-generation utilities, automobile manufacturers, health care providers, food- and metal-processing industries, petroleum refineries, electronic and computer manufacturers, heavy construction and vehicle manufacturers, thermal comfort firms, and farm implement firms.

**Industrial Engineering**

Industrial engineering is concerned with analysis, design, and implementation of systems through optimal use of resources—human, material, energy, information, and financial. Systems may range from small units to extremely large operations. In order to accomplish these activities, the industrial engineer must be skilled in mathematics, physics, electronics, health care, and other fields.

Mechanical engineers have many opportunities for employment and service in industrial, government, research, and public service organizations. Employment opportunities are among the most varied in the engineering field. Industrial engineers hold positions as advisers to management or may participate directly in management decisions. Representative job titles include industrial engineer; manufacturing engineer; systems analyst, quality specialist, operations research analyst, internal consultant, human factors specialist, supervisor, and manager. While most industrial engineers are employed by manufacturing firms, others work in government agencies or service organizations such as airlines, banks, hospitals, and consulting companies.

**Undergraduate Programs**

The department offers undergraduate programs in mechanical engineering and in industrial engineering. Both lead to the Bachelor of Science in engineering.

**Mechanical Engineering**

The objective of the undergraduate program in mechanical engineering is to produce graduates who:

- have a strong foundation of knowledge in mathematics, science, and mechanical engineering and are equipped with skills in problem solving, design, teamwork, and communication that will serve them throughout their careers;
- are able to pursue successful careers as practicing mechanical engineers in manufacturing industries, energy and utility companies, and engineering consulting firms;
- are able to successfully pursue advanced studies in mechanical engineering; in related technical areas such as physics, applied mathematics, and other engineering disciplines; and in other professional fields; and
- are able to assume professional leadership roles.

**Industrial Engineering**

The objective of the undergraduate program in industrial engineering is to produce graduates who:

- have a strong foundation of mathematical, scientific, and technical knowledge and are equipped with skills in problem solving, teamwork, and communication that will serve them throughout their careers;
- are able to pursue successful careers as practicing industrial engineers in manufacturing industries, medical institutions, and engineering consulting firms;
- are able to successfully pursue advanced studies in industrial engineering; in other engineering disciplines; or in diverse nontraditional fields such as medicine, law, or business; and
- are able to assume professional leadership roles.

**B.S.E. in Mechanical Engineering**

The College of Engineering adopted new undergraduate program curricula effective for all new students beginning fall semester 2002. The new curricula are described in this Catalog. Students who began their engineering studies before fall semester 2002 can continue to follow the old curricula (described in pre-2002 editions of the Catalog, existing program curriculum sheets, and degree evaluation forms), with possible course substitutions. They also may choose to change to the new curricula under conditions defined by each program and available from the college’s Student Development Center.

Mechanical engineering students acquire a foundation in the basic disciplines of mathematics, physics, and chemistry and in the engineering sciences of statics, dynamics, thermodynamics, mechanics of deformable bodies, mechanics of fluids and transfer processes, materials science, and electrical sciences. An understanding of these sciences enables mechanical engineers to design parts of systems and understand whole systems, plan the production and use of energy, plan and operate industrial manufacturing facilities, and design automatic control systems for machines and other mechanical systems. Students also gain an appreciation of social and humanitarian issues relating to business, environment, government, history, language, religion, and international relations.

The B.S.E. in mechanical engineering requires a minimum of 128 s.h. of credit. The curriculum covers four major stems: mathematics and basic sciences, engineering topics, elective focus area, and general education (15 s.h. of humanities and social science courses). Also required are the background courses Engineering Problem Solving I-II and Accelerated Rhetoric.

Upper-level students work on team projects in a senior capstone design course, 058:086 Mechanical Engineering Design Project. Participation in established research projects may be arranged.

Some courses in the curriculum are prerequisites to others. Students who take courses in the following order satisfy the prerequisite requirements automatically. Students who do not follow this sequence still must satisfy all course prerequisites.

General education component courses must be selected to satisfy the requirements of the College of Engineering. See “General Education Component” in the College of Engineering introductory section of the Catalog. Elective focus area courses must be selected according to guidelines established by the Department of Mechanical and Industrial Engineering. See “Elective Focus Area” following the curriculum list.

**FIRST YEAR**

**First Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>004:011</td>
<td>Principles of Chemistry I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>010:003</td>
<td>Accelerated Rhetoric</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22M:031</td>
<td>Engineering Mathematics I: Single Variable Calculus</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>059:005</td>
<td>Engineering Problem Solving I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>059:090</td>
<td>First-Year Engineering Seminar</td>
<td>0 s.h.</td>
</tr>
</tbody>
</table>

**Second Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>22M:032</td>
<td>Engineering Mathematics II: Multivariable Calculus</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22M:033</td>
<td>Engineering Mathematics III: Matrix Algebra</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>029:081</td>
<td>Introductory Physics I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>059:006</td>
<td>Engineering Problem Solving II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>General education component course</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

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**General education component courses must be selected to satisfy the requirements of the College of Engineering. See “General Education Component” in the College of Engineering introductory section of the Catalog. Elective focus area courses must be selected according to guidelines established by the Department of Mechanical and Industrial Engineering. See “Elective Focus Area” following the curriculum list.**
SECOND YEAR

First Semester

22M:034 Engineering Mathematics IV: Differential Equations 3 s.h.
029:092 Introductory Physics II 3 s.h.
058:020 Mechanical Engineering Sophomore Seminar 0 s.h.
059:007 Engineering Fundamentals I: Statics 2 s.h.
059:008 Engineering Fundamentals II: Electrical Circuits 3 s.h.
059:009 Engineering Fundamentals III: Thermodynamics 3 s.h.
General education component course 3 s.h.

Second Semester

057:010 Dynamics 3 s.h.
057:015 Materials Science 3 s.h.
057:019 Mechanics of Deformable Bodies 3 s.h.
058:052 Design for Manufacturing 3 s.h.
Elective focus area course 3 s.h.

THIRD YEAR

First Semester

22M:037 Engineering Mathematics V: Vector Calculus 3 s.h.
22S:039 Probability and Statistics for the Engineering and Physical Sciences 3 s.h.
057:018 Principles of Electronic Instrumentation 4 s.h.
057:020 Fluid Mechanics 4 s.h.
058:091 Professional Seminar: Mechanical Engineering 0 s.h.
Elective focus area course 3 s.h.

Second Semester

058:040 Thermodynamics II 3 s.h.
058:045 Heat Transfer 3 s.h.
058:052 Mechanical Systems 3 s.h.
Elective focus area course 3 s.h.
General education component course 3 s.h.

FOURTH YEAR

First Semester

058:048 Energy Systems Design 4 s.h.
058:055 Mechanical Systems Design 4 s.h.
058:091 Professional Seminar: Mechanical Engineering 0 s.h.
Elective focus area courses (100 level) 6 s.h.
General education component course (100 level) 3 s.h.

Second Semester

058:080 Experimental Engineering 4 s.h.
058:086 Mechanical Engineering Design Project 3 s.h.
Elective focus area courses 6 s.h.
General education component course (100 level) 3 s.h.

Elective Focus Area

The mechanical engineering program offers a variety of elective focus area options, including standard focus areas developed and maintained by the program and flexible focus areas tailored to individual student interests. For more detailed information about elective focus areas, see the College of Engineering introductory section of the Catalog. For a list of standard mechanical engineering elective focus area options and guidelines for tailored elective focus areas, see the Department of Mechanical and Industrial Engineering web site.

Combined B.S./M.S. in Mechanical Engineering

Qualified mechanical engineering undergraduate students who plan to earn a master's degree in mechanical engineering may enroll in the program's combined Bachelor of Science/Master of Science program, which enables students to complete the master's degree in two or three semesters after completing the bachelor's degree. Students enter the program after the junior year and are allowed to take up to 12 s.h. of courses for graduate credit. Of these, up to 6 s.h. of 100- or 200-level courses can be counted toward both the B.S. and the M.S. degrees, with approval of the student's graduate adviser.

To be admitted to the program, students must have completed at least 80 s.h., must have a cumulative g.p.a. of at least 3.25, and must submit a letter of application to the chair of the Department of Mechanical and Industrial Engineering.

B.S.E. in Industrial Engineering

The College of Engineering adopted new undergraduate program curricula effective for all new students beginning fall semester 2002. The new curricula are described in this Catalog. Students who began their engineering studies before fall semester 2002 can continue to follow the old curricula (described in pre-2002 editions of the Catalog, existing program curriculum sheets, and degree evaluation forms), with possible course substitutions. They also may choose to change to the new curricula under conditions defined by each program and available from the college's Student Development Center.

The undergraduate program in industrial engineering requires a strong foundation of courses in engineering science, mathematics, design, manufacturing, social science, and humanities. Advanced work includes specialty courses in manufacturing operations and industrial robotics, human factors/ergonomics, management, economics and information systems, concurrent engineering, production, quality control, and operations research. Design is an integral part of the undergraduate program; all students complete a comprehensive design experience.

The B.S.E. in industrial engineering requires a minimum of 128 s.h. of credit. The curriculum covers four major stems: mathematics and basic sciences, engineering topics, elective focus area, and general education (15 s.h. of humanities and social science courses). Also required are the background courses Engineering Problem Solving I-II and Applied Rhetoric.

Some courses in the curriculum are prerequisites to others. Students who take courses in the following order satisfy the prerequisite requirements automatically. Students who do not follow this sequence still must satisfy all course prerequisites.

General education component courses must be selected to satisfy the requirements of the College of Engineering. See “General Education Component” in the College of Engineering introductory section of the Catalog.

Elective focus area courses must be selected according to guidelines established by the Department of Mechanical and Industrial Engineering. See “Elective Focus Area” following the curriculum list.

FIRST YEAR

First Semester

004:011 Principles of Chemistry I 4 s.h.
010:003 Accelerated Rhetoric 4 s.h.
22M:031 Engineering Mathematics I: Single Variable Calculus 4 s.h.
059:005 Engineering Problem Solving I 3 s.h.
059:090 First-Year Engineering Seminar 0 s.h.

Second Semester

22M:032 Engineering Mathematics II: Multivariable Calculus 4 s.h.
22M:033 Engineering Mathematics III: Matrix Algebra 2 s.h.
029:081 Introductory Physics I 4 s.h.
059:006 Engineering Problem Solving II 3 s.h.
General education component course 3 s.h.

SECOND YEAR

First Semester

22M:034 Engineering Mathematics IV: Differential Equations 3 s.h.
029:082 Introductory Physics II 3 s.h.
031:001 Elementary Psychology 3 s.h.
056:020 Industrial Engineering Sophomore Seminar 3 s.h.
059:007 Engineering Fundamentals I: Statics 2 s.h.
059:008 Engineering Fundamentals II: Electrical Circuits 3 s.h.
059:009 Engineering Fundamentals III: Thermodynamics 3 s.h.

Second Semester

22S:039 Probability and Statistics for the Engineering and Physical Sciences 3 s.h.
056:020 Industrial Engineering Sophomore Seminar 3 s.h.
056:045 Engineering Economy 3 s.h.
057:015 Materials Science 3 s.h.
057:017 Computers in Engineering 3 s.h.

THIRD YEAR

First Semester

056:032 Design for Manufacturing 3 s.h.
056:144 Human Factors 3 s.h.
056:171 Operations Research 4 s.h.
Elective focus area course 3 s.h.
General education component course (100 level) 3 s.h.

Second Semester

225:030 Statistical Methods and Computing 3 s.h.
The Department of Mechanical and Industrial Engineering offers the Master of Science and the Doctor of Philosophy in mechanical engineering and in industrial engineering.

Graduate Programs

The Department of Mechanical and Industrial Engineering offers the Master of Science and the Doctor of Philosophy in mechanical engineering and in industrial engineering.

## Research and Study in Mechanical Engineering

The graduate programs in mechanical engineering educate students in more depth and breadth than is possible at the baccalaureate level. This prepares the graduate to use contemporary methods at advanced levels in professional careers in engineering design, development, teaching, and research. Each student's plan of study is based on his or her background and career objectives, as well as on sound academic practice. Faculty members in the program have teaching and research expertise in energy conversion, fluid and thermal sciences, solid mechanics, mechanical systems, and related areas.

Students may develop programs emphasizing fluid mechanics, thermodynamics, heat transfer, fatigue and fracture mechanics, and mechanical systems. Some may pursue more general programs that combine emphases. Others may specialize in interdisciplinary areas (e.g., energy conversion, materials engineering, automatic control, chemical processes), which involve a combination of departmental courses and appropriate electives from other departments of the College of Engineering and the University. Ph.D. programs may be offered in any of these areas through choice of appropriate course work and research topic.

Information on the graduate programs in mechanical engineering is published in the Graduate Student Handbook, available in the department office.

The mechanical engineering program offers the following research and study areas.

### Elective Focus Area

The industrial engineering program offers a variety of elective focus area options, including standard focus areas developed and maintained by the program and flexible focus areas tailored to individual student interests. For more detailed information about elective focus areas, see the College of Engineering introductory section of the Catalog. For a list of standard industrial engineering elective focus area options and guidelines for tailored elective focus areas, see the Department of Mechanical and Industrial Engineering web site.

### Combined B.S./M.S. in Industrial Engineering

Qualified industrial engineering undergraduate students who plan to earn a master's degree in industrial engineering may enroll in the program's combined Bachelor of Science/Master of Science program, which enables students to complete the master's degree in two or three semesters after completing the bachelor's degree. Students enter the program after the junior year and are allowed to take up to 12 s.h. of courses for graduate credit. Of these, up to 6 s.h. of 100- or 200-level courses can be counted toward both the B.S. and the M.S. degrees, with approval of the student's graduate adviser.

To be admitted to the program, students must have completed at least 80 s.h., must have a cumulative g.p.a. of at least 3.25, and must submit a letter of application to the chair of the Department of Mechanical and Industrial Engineering.

### THERMAL SCIENCES

The graduate program in thermal sciences and systems is designed to provide students with a rigorous and broad foundation in theoretical and experimental aspects of the subject. It prepares future graduates for careers in industry, teaching, and government. The program emphasizes fundamentals of thermodynamics and heat transfer, and associated analytical, numerical, and experimental methods used in energy conversion systems. Areas of concentration include fluid mechanics, thermodynamics, heat transfer, phase-change, combustion, and chemically reactive flows.

Most courses relevant to the specialization areas are offered by the Department of Mechanical and Industrial Engineering. Students are encouraged to supplement these with courses from other areas, such as mathematics and physics, and courses offered by other departments in the College of Engineering in order to balance their programs.

Current research projects include analytical, numerical, and experimental investigations of convective and radiative heat transfer in absorbing and scattering media; laminar and turbulent heat transfer; airbag inflator flow diagnostics and modeling, hot spot ignition of condensed-phase energetic materials, transition to detonation in granular materials; natural convection; turbulent jet as well as turbulent flow; diffusion flames, spray atomization and combustion, microgravity diffusion flames; transport modeling of fuel cells; transport phenomena in materials processing, melting and solidification, porous media, double-diffusive convection; optimal control of thermal systems; and flow visualization of complex convection processes.

### MECHANICAL SYSTEMS

The graduate program in mechanical systems is designed to provide students with a broad, strong background in theoretical, computational, experimental, and applied aspects of the subject. It prepares future graduates for careers in industry, teaching, and government. The program emphasizes fundamental principles, computational techniques, and experimentation used to analyze and design mechanical systems. Areas of concentration include machine and vehicle dynamics, operator-in-the-loop simulation, optimal design, structural optimization, computational solid mechanics, robotics, probabilistic mechanics and reliability, reliability-based design and optimization, and fatigue and fracture mechanics.

Although most courses relevant to the specialization areas are offered by the Department of Mechanical and Industrial Engineering, students are encouraged to consider appropriate courses from other areas, such as mathematics, statistics, physics, and other College of Engineering departments.

Current research projects include design sensitivity analysis of rigid and flexible mechanical systems; computer-aided design; mechanism and manipulator workspace analysis; real-time dynamic simulation; vehicle system dynamics; finite element and meshfree methods for nonlinear mechanics, multiphysics, and multiple-scale problems; stochastic meshfree and
Research and Study in Industrial Engineering

Graduate programs in industrial engineering are tailored to meet the needs of the individual. Each student's program of study is based on his or her background, career objectives, and sound academic practice. The curriculum is highly flexible; the goal is academic excellence.

There are six principal areas of academic focus in the graduate program in industrial engineering: design and manufacturing, human factors engineering/ergonomics, engineering management, quality and production control, operations research and applied statistics, and information systems. Students in the graduate program participate in research in the areas of their academic concentration.

QUALITY AND PRODUCTION CONTROL

Quality and production control research currently focuses on measures for corporate quality, computer-aided layout and scheduling, just-in-time production, inspection, and online expert systems in process control. The quality and production control studies consider the design, quality assurance, and production control. This area of concentration is covered by courses in the 50 series.

HUMAN FACTORS/ERGONOMICS

Current research in human factors/ergonomics consists of nuclear, structural systems; reliability-based design optimization; shape optimal design of elastoplastic materials; optimal design of metal stamping process; analysis, design, and control of robotic mechanisms; multibody dynamics; probabilistic and elastic-plastic fracture mechanics; damage-tolerant design; and fatigue behavior and life prediction under constant and variable amplitude loading.

M.S. in Industrial Engineering

The Master of Science is offered with thesis and nonthesis options. Students considering eventual admission to a Ph.D. program are strongly advised to select the thesis option. Students who hold research or teaching assistantships normally are required to pursue the thesis option. All M.S. students must earn two-thirds of the required semester hours for the degree in the industrial engineering program. They also must have strong verbal and written skills in English. Students also should have strong background in their particular emphasis area; those with insufficient background must take additional coursework beyond the minimum semester-hour requirements.

The M.S. with the thesis requires a minimum of 30 s.h. of 100- or 200-level courses, including a maximum of 6 s.h. of research. Students in the thesis option must take at least one course from each of three focus areas: human factors, operations research, and manufacturing systems. At least 9 s.h. must be earned in 200-level courses. M.S. thesis applicants who wish to pursue a Ph.D. degree at The University of Iowa may wish to select two 200-level courses in each of the focus areas to complete the Ph.D. breadth requirement before entering the Ph.D. program.

Students who elect the nonthesis option must complete a minimum of 36 s.h. of course work at the 100 level or above, including at least 9 s.h. of industrial engineering course work at either the 200 level or at the 100 level with the designation "advanced" in the course title.

Entering students are advised by the department chair or by a designated faculty advisor. During the first fall or spring semester of the student's residence, a regular adviser is assigned by the department chair or the graduate program coordinator.

During that semester, the student and the adviser prepare a planned program of studies, which they submit to the program chair for approval. Once the plan is approved, it is filed with the student's record. It is the student's responsibility to assure that a plan of study is submitted to the program chair.

Entering students in all programs need a background in computer programming, e.g., Java, C++, C, Pascal, or FORTRAN, probability,**
statistics, and mathematics equivalent to that required in accredited undergraduate engineering programs. Engineering management and human factors students find psychology and engineering economics to be useful preparation. Compensatory course work may be required for students with nonengineering backgrounds.

To be eligible for the M.S. degree, students are required to maintain a g.p.a. of 3.00 on all graduate course work at The University of Iowa. They also are required to pass a final comprehensive examination as specified by each student's examination committee, which consists of at least three members of the Graduate College faculty and must be approved by the department chair.

The comprehensive examination must consist of both oral and written parts. Its purpose is to assess the adequacy of the student's defense of thesis and/or course preparation. The final plan of study, approved by the department chair and the dean of the Graduate College, is prerequisite to the exam.

It is the student's responsibility to submit a degree application to the Graduate College by the college's deadline. The student should consult with his or her adviser on the composition of the advisory/examination committee and the time and place for the exam.

Ph.D. in Mechanical Engineering

Typically, Ph.D. programs in mechanical engineering require approximately 90 s.h. of credit—including research for the dissertation—beyond the baccalaureate degree. Students must pass the qualifying examination administered by the program to be formally admitted to the doctoral program.

Each student takes the comprehensive examination after passing the qualifying examination and when the course work specified in the plan of study is nearly completed; in any case, the comprehensive examination should be taken no later than 28 months after the first registration in the Ph.D. program. To be admitted to the comprehensive examination, a student must be in good academic standing and must be recommended by his or her adviser. The exam is administered by the student's committee. Admission to Ph.D. candidacy is recognized upon successful completion of the comprehensive examination.

Having satisfactorily completed the exam, the student usually has only to complete and defend the dissertation at the final examination.

Requirements for the Ph.D. degree usually can be completed in three to four years beyond the M.S. degree.

Ph.D. in Industrial Engineering

The Ph.D. in industrial engineering is given upon demonstration of comprehensive knowledge and scholarly work at the highest level. A series of written and oral examinations is required, as well as a written dissertation based upon the results of original investigation.

The degree requires broad background as well as considerable depth in at least one area of specialization. Students are expected to satisfy the requirements for the M.S. degree in industrial engineering before being admitted to the Ph.D. program.

The Ph.D. requires 72 s.h. of study, including research for the dissertation. This requirement includes at least two semesters in residence at The University of Iowa. A maximum of 36 s.h. earned toward the M.S. may be counted toward the 72 s.h. required for the Ph.D.

Actual study requirements above this minimum are specified by the student's advisory committee. There is no foreign language requirement or special requirement for research techniques. Admission to degree candidacy requires a g.p.a. of at least 3.25 on all graduate work taken at The University of Iowa, demonstration of capacity for individual achievement, and successful completion of the comprehensive examination.

Entering students are advised by the department chair or by a designated faculty adviser. During the first regular semester of the student's residence, an adviser is assigned by the department chair or the graduate program coordinator.

During that semester, the student and his or her adviser prepare a plan of study, which they submit to the department chair for approval. Once the plan is approved, it is filed with the student's record. It is the student's responsibility to assure that a plan of studies is submitted to the program chair.

Upon completing the course work specified by the adviser and advisory committee, the student is admitted to the comprehensive examination, which includes both written and oral parts. Part of this examination usually includes the presentation of a dissertation proposal, so that the advisory committee can evaluate the student's academic preparation in light of the research to be performed. Upon satisfactorily completing this examination, the student is accepted as a candidate for the Ph.D. and usually has only to complete and defend the dissertation.

Part-time Ph.D. study is discouraged.

Requirements for the degree are as follows.

INDUSTRIAL ENGINEERING BREADTH REQUIREMENT

Each Ph.D. student must pass at least two 200-level industrial engineering courses in each of three focus areas: human factors, operations research production systems, and manufacturing systems. Students who have earned an M.S. in the program may already have satisfied this requirement.

QUALIFYING EXAM

Each student must satisfy the qualifying exam requirement in two of the three focus areas. The requirement for each focus area can be satisfied by passing a written qualifying exam in the focus area or by earning a grade of A- or higher in each of two 200-level industrial engineering courses in the focus area.

FOCUS AREA STUDY

Students take at least two more 200-level industrial engineering courses in one of the three focus areas.

COMPREHENSIVE EXAMINATION

Each student must demonstrate his or her ability to carry out creative individual research by completing and defending his or her dissertation research proposal in a comprehensive examination. The exam is conducted by a committee of industrial engineering and Graduate College faculty members. It is scheduled only after the qualifying examination requirement has been satisfied. The examining committee determines whether the student is ready to begin dissertation research. Once the student has completed the comprehensive examination satisfactorily, he or she is accepted as a candidate for the Ph.D. and begins work on the dissertation.

FINAL EXAMINATION (THESIS DEFENSE)

Each student must defend his or her completed dissertation in the final examination, which is conducted by the examining committee.

Admission

Mechanical Engineering

Students who have earned a baccalaureate or master's degree in an engineering curriculum or in a curriculum in the mathematical or physical sciences are eligible to be considered for admission to the graduate program in mechanical engineering. In order to be considered for regular admission, the student must have a g.p.a. of at least 3.00 on all previous college-level work and minimum Graduate Record Examination (GRE) General Test scores of 500 verbal, 750 quantitative, and 600 analytical or higher. Students whose native language is not English also are required to obtain a Test of English as a Foreign Language (TOEFL) score of 550 or higher on the paper-based test or a score of 213 or higher on the computer-based test. Students may, under exceptional circumstances, be considered for conditional admission with a lower grade-point average and/or GRE or TOEFL test scores. The student with conditional status must achieve regular status within one semester (excluding summer sessions) after admission. To satisfy this requirement, the conditionally admitted student must attain a g.p.a. of at least 3.00 on an initial registration of 9 s.h. at The University of Iowa. The Graduate College cancels registration for the subsequent semester for students who have not submitted their GRE and/or TOEFL scores by the end of the first regular semester after admission.

Industrial Engineering

Reference letters, student research interests, grade-point average for previous graduate study, and factors such as faculty availability are considered in admission decisions. Students with an M.S. objective may be admitted from an ABET-accredited baccalaureate curriculum in any engineering discipline, or in the mathematical sciences, the physical sciences,
or the computer sciences with a g.p.a. of at least 3.00 and an acceptable score on the Graduate Record Examination (GRE) General Test. Applicants from institutions outside the United States must meet equivalent conditions for regular admission. Students with lesser qualifications may be considered for conditional admission.

Students from business or social science programs who have mathematical preparation similar to that of engineering students are considered for regular or conditional admission. Students on conditional status must achieve regular status within two sessions of their first registration by attaining an acceptable grade-point average and gaining regular acceptance by the industrial engineering program faculty; otherwise, they are dismissed. Admissions may be limited by available resources.

Students with a Ph.D. objective may be admitted from an ABET-accredited baccalaureate curriculum or a postbaccalaureate curriculum in any engineering discipline or in the mathematical sciences, computer science, or physical sciences with a g.p.a. of at least 3.25 and an acceptable GRE General Test score. Applicants from outside the United States must meet equivalent standards for regular admission as determined by The University of Iowa. Students also may be admitted from business or social science programs as determined individually. Students who wish to earn a Ph.D. and who have a B.S. degree or an M.S. degree without thesis usually are first admitted to the M.S. program. All admissions to the Ph.D. program are reviewed by the program graduate studies committee.

Financial Support

Mechanical Engineering

Financial support is available to M.S. and Ph.D. students, primarily through teaching and research assistantships from the Department of Mechanical and Industrial Engineering, the Center for Computer-Aided Design, IIHR—Hydroscience and Engineering, and the National Advanced Driving Simulator. These awards may be made on a semester, academic year, or calendar year basis. Awards and reappointments are competitive and are based on the student's potential contribution to the teaching and research goals of the department. Students who fulfill their assistantship responsibilities and continue to make satisfactory progress toward their degree objective receive preference in new assistantship awards. All applications for financial support should be submitted directly to the department chair. M.S. students with a one-quarter-time or more appointment are required to register for a minimum of 9 s.h. during fall and spring semesters and 3 s.h. during summer sessions if they have completed 30 s.h. of course and research work beyond the baccalaureate degree. Ph.D. students with one-quarter-time or more appointments must register for a minimum of 9 s.h. during fall and spring semesters until they have completed 90 s.h. of course and research work beyond the baccalaureate degree. Once they meet these minimums, graduate students must register for a minimum of 2 s.h. Students with appointments must register during summer sessions. All registrations should accurately reflect the amount and type of work undertaken, the use of University facilities, and the amount of consultation with the faculty.

Industrial Engineering

A number of one-quarter-time and one-half-time graduate student teaching and research assistantships are available. Awards are based on students' academic records and assessment of their potential contribution to the research and teaching goals of the program. Advanced graduate students also may qualify for higher stipend instructor positions. Students should write to the chair of mechanical and industrial engineering for further information.

Health Informatics Certificate

Graduate students in industrial engineering may elect to earn the Certificate in Health Informatics. The certificate program is an interdisciplinary collaboration among the health sciences, engineering, computer science, information science, management science, and statistics. Students in the program are trained to analyze health care data, evaluate information and knowledge, and study health care research, education, and practice. Certificate students complete a minimum of 20 s.h., including Health Informatics I-II and approved electives.

The certificate may be earned in conjunction with a master's or doctoral degree or as a postgraduate study. Completion of the Certificate in Health Informatics is noted on the student's transcript.

Special Facilities and Laboratories

Mechanical Engineering: Undergraduate Instruction

ENGINEERING CORE

The laboratories for fluid flows and transport processes contain a wind tunnel; a water flume; a water table; four water channels with porous media; three air-jet tables; various air, water, and oil flow devices; and facilities for numerous small-scale experiments to demonstrate the principles of mass, momentum, and energy transfer.

For information about laboratories affiliated with core courses coordinated by other engineering departments, see the subsection for each department.

REQUIRED AND ELECTIVE COURSE LABORATORIES

The mechanical engineering laboratory for experimental engineering provides undergraduate students with exposure to contemporary measurement theory, sensors, signal conditioners, instrumentation, and computer-aided data acquisition systems.

The laboratory for mechanical engineering design projects provides for either team or individual project activities in mechanical engineering design, construction of mechanisms, and testing.

The thermal and heat transfer laboratory is equipped with data acquisition systems to process data online on computers. Experiments in heat transfer measurements are made in this laboratory.

Mechanical Engineering: Graduate Facilities

FLUID MECHANICS

The program in fluid mechanics is conducted in close collaboration with the IIHR—Hydroscience and Engineering. The equipment available to graduate students includes several wind tunnels and hydraulic flumes, an environmental flow facility, a towing tank, two special low-temperature flow facilities for investigation of ice phenomena, hot-wire and laser anemometer systems, particle-image velocimetry systems, and computer-based data acquisition systems.

Facilities available in the department include a flow visualization and imaging system with CCD (Charge Coupled Devices) camera, and a low-speed wind tunnel. IIHR and College of Engineering shops provide the necessary support. In addition to using in-house workstations and computers, the department's faculty members and students make extensive use of supercomputers at several national centers.

THERMAL SCIENCES

Facilities for research in the thermal sciences and systems consist of a low-pressure combustion chamber, a high-pressure chamber for atomization study, a test rig for heat transfer to supercritical fluids, a diffusion flame test rig, an enclosed laminar flame test rig, a 20-liter explosion vessel, an airbag inflator test rig, an air atomization spray apparatus, test stands for melting and solidification studies, various optical measurement systems, and two commercial direct digital control systems. Laser-based diagnostics (e.g., laser-induced fluorescence, imaging, and laser Doppler anemometry) are available for solidification, turbulent flow, heat transfer, and combustion studies. Flow visualization and imaging by CCD camera are available for the study of complex fluid motion and heat convection, and combustion flows.

MECHANICAL SYSTEMS

Experimental facilities for the department's fatigue and fracture mechanics study include access to a scanning electron microscope, a field computer data acquisition system, state-of-the-art computer controlled servo-hydraulic closed-loop fatigue test equipment, and equipment for characterization of material properties. Conventional strength of materials test equipment also is available.

Computer-based simulation research activities in the mechanical systems area are carried out mainly in the Center for Computer-Aided Design (CCAD). CCAD maintains a variety of high-performance computer systems in support of its technology research and development efforts. A 16-processor HP Exemplar S-class supercomputer provides resources for extensive engineering analysis capabilities using a wide
variety of industry-standard and locally developed software. General computing services are supported with a number of UNIX and Windows NT applications servers connected to centralized file servers. CAD/CAE, software development, virtual prototyping, and virtual environment development applications are hosted on more than 40 Hewlett-Packard and Silicon Graphics UNIX workstations. Standard desktop, multimedia, and office productivity applications are hosted on a network of more than 40 workstations.

**Industrial Engineering: Undergraduate and Graduate Facilities**

Information about laboratories affiliated with core courses coordinated by other programs can be found in the Catalog sections for each of the other engineering departments.

**ACTIVE LEARNING FACILITY**

The Active Learning Facility (ALF) uses a project-oriented, team-based, hands-on approach to education. The facility provides NT servers, personal computers, and remote plug-ins for students’ laptops. It also offers a variety of software for project management, presentations, and data analysis and reporting.

**ADVANCED SYSTEM LABORATORY**

The Advanced Systems Laboratory houses research on development and implementation of computational algorithms for the optimization of complex systems.

**COGNITIVE SYSTEMS LABORATORY**

The Cognitive Systems Laboratory is devoted to examining the safety, performance, and user acceptance implications of technology insertion into complex systems. The laboratory has networked computers, a video editing workstation, a process control simulation, and a low-cost driving simulator. The simulator is equipped with five cameras, instrumentation to record all driver activity, and an eye tracking system. The Cognitive Systems Laboratory shares the driving simulator and an instrumented vehicle with the Operator Performance Laboratory. The equipment supports class projects, system development, and undergraduate and graduate research.

**ESPIRIT LAB**

The ESPRIT (Engineering Science Preparation and Introductory Training) Lab is the home of an accelerated educational program that selects a small group of engineering students during their first year and nurtures them throughout their study at Iowa. ESPRIT introduces young engineers to the world of the engineering laboratory, teaches the practical and technical skills that most often prove useful in the lab, and helps students develop the research habits of self-reliance and self-discipline. The program also promotes effective teamwork, journaling, and technical writing. ESPRIT emphasizes open-ended program solving, analytic skills, and scientific rigor, preparing students to address significant, challenging problems throughout their careers.

**GROK LABORATORY**

The GROK Laboratory develops computer software and mechanical devices to improve human performance with complex tasks. The laboratory has developed technologies used by NASA to control robots exploring South America and Mars. It also designs and develops microsurgery and dental simulators to train new surgeons and dentists.

**OPERATOR PERFORMANCE LABORATORY**

Research in the Operator Performance Laboratory (OPL) focuses on determining human performance in a variety of situations, with particular emphasis on the driving and flight deck environments. A considerable proportion of the research is performed in the field using a state-of-the-art instrumented vehicle that is equipped with five cameras, eye movement equipment, two computers, video equipment, and a suite of sensors. The OPL also features a scale Boeing 737-400 fixed-base flight simulator with six channels of visuals. The flight simulator is equipped with a remote eye-tracking device that allows the activation of selected virtual controls in the flight deck. A specially designed stimulus presentation booth is used for color research and for photometry applications. Computer models of operator performance are designed based on the data obtained in the laboratory and field research.

**E-COMMERCE LABORATORY**

The E-Commerce Laboratory provides a facility for advanced research on Internet technologies and educational programs in key Internet subjects. The laboratory contains the full facilities necessary for a strong Internet capability, including Windows NT workstations, PCs and Macs, UNIX workstations, Internet server software for each platform, Java, VRML, JavaScript, ActiveX and VBScript programming facilities, videoconferencing cameras and group collaboration software, CAD systems software, and database systems.

Activities at the E-Commerce Laboratory include working with companies to improve their use of the Internet; providing assistance in advanced uses of the World Wide Web; providing seminars and workshops to improve Internet education; and carrying out research in key Internet technologies.

Research is under way in a number of key areas, including videoconferencing using the Internet; rapid product development through Internet links with suppliers and customers; virtual reality over the Internet; use of remote databases to access corporate data; use of the Internet to support team-based activities; security of Internet-based activities; and CAD file viewing and manipulation through the World Wide Web.

**COMPUTER-AIDED MANUFACTURING LABORATORY**

The Computer-Aided Manufacturing (CAM) Laboratory is used to teach CAD (computer-aided design) and CAM programming and to set up projects that demonstrate various computer-integrated manufacturing technologies. Hardware and software are available to design parts and plan processing, including generation of CNC program files.

Typical activities conducted in the laboratory include geometric modeling; transfer of geometric files and other design data to conduct process planning; experiments; definition of the operation sequences and calculation of optimal process settings; generation of CNC part programs and support data; and download of appropriate machining instructions and data to preset CNC machines (small-scale or full-scale) to make the parts. Laboratory equipment includes IBM and Gateway microcomputers; small-scale machine tools (millling and turning); and different types of industrial controls.

**COMPUTER NUMERICAL CONTROL MACHINING LABORATORY**

Undergraduate and graduate students gain hands-on experience in programming and operating a computer numerical control (CNC) lathe, an automated storage and retrieval system (AS/RS), and a coordinate measuring machine (CMM) in the CNC Machine Laboratory. CNC programs can be developed through the machine control keyboard or downloaded via RS232C data link from a programming station in the CAM Laboratory. Research studies in the machinability of various metals for different cutting tool and machining parameters are conducted there. A machine vision system is used to evaluate tool wear patterns.

**ADVANCED WELDING LABORATORY**

The Advanced Welding Laboratory provides improved facilities and automated equipment for automated arc welding. Gas metal arc welding (GMAW or MIG) systems are used in undergraduate courses to demonstrate process control issues, and in research to investigate process relationships and process control algorithms during high-speed welding. Two full-size Yaskawa Motoman SV3 seven-axis welding robot systems are used for demonstrations, for the investigation of the weld process variable control, and for off-line programming.

The laboratory also includes four Scorbot III and one Scorbot V small-scale material handling robots, various sensing devices, microcomputers of various types, precision controller devices, programmable controllers, and actuation devices.

**INTELLIGENT SYSTEMS LABORATORY**

The Intelligent Systems Laboratory provides facilities for research in computational intelligence leading to applications in industry, service organizations, and health care. Research in the laboratory is funded by government agencies and industrial corporations. Solutions to practical problems and enhancement of engineering education are emphasized. Most of the laboratory’s recent projects concentrate on development of software tools for product development, manufacturing, and health care applications.

The Intelligent Systems Laboratory is furnished with the latest computer technology to support research on numerous computing platforms. Diverse software is available for modeling, design, and construction of intelligent systems—for example, data mining software, neural networks, expert systems, and simulation software.
Courses

Mechanical Engineering

Special Topics

058:000 Cooperative Education Training Assignment: Mechanical Engineering 0 s.h.
Mechanical engineering students participating in the Cooperative Education Program register in this course during work assignment periods; registration provides a record of participation in the program on the student's permanent record. Prerequisites: admission to the Cooperative Education Program and consent of the cooperative education faculty advisor.

058:020 Mechanical Engineering Sophomore Seminar 0 s.h.
Introduction to the mechanical engineering profession and curriculum; ethics and professionalism in classroom and workplace; mentorship program and professional societies; visits to laboratories and local companies. Prerequisite: sophomore standing or transfer student.

058:080 Experimental Engineering 4 s.h.

058:086 Mechanical Engineering Design Project 3 s.h.
Application of mechanical, thermal, fluid systems design; student or team design projects initiated at various levels in the design process, carried through to higher levels; emphasis on synthesis, written and oral communication. Corequisites: 058:048 or 058:055.

058:090 Mechanical Engineering First-Year Seminar 0 s.h.
Introduction to the mechanical engineering curriculum, profession, visits to laboratories, industries. Prerequisite: first-year or transfer standing.

058:091 Professional Seminar: Mechanical Engineering 0 s.h.
Professional aspects of mechanical engineering: presentations, student/faculty interaction, professional society involvement, panel discussions, plant trips. Prerequisite: junior standing.

058:098 Individual Investigations: Mechanical Engineering 0 s.h.
Individual projects for mechanical engineering undergraduate students; laboratory study, engineering design project; analysis, synthesis, simulation of an engineering system; computer software development, research. Prerequisite: consent of adviser.

General Topics

058:110 Computer-Aided Engineering 3 s.h.
Computer methods for engineering modeling and simulation; geometric modeling, finite-element analysis, optimization, graphics and visualization, introduction to virtual-reality methods. Prerequisites: 057:019 and 058:052, or equivalents. Same as 053:115.

058:111 Numerical Calculations 3 s.h.
Development of algorithms for functional approximations, numerical differentiation and integration, solution of algebraic and differential equations, with emphasis on digital computers; initial and boundary value problems. Prerequisite: 224:041. Same as 053:111.

058:112 Engineering Design Optimization 3 s.h.
Same as 053:112.

058:113 Mathematical Methods in Engineering 3 s.h.

058:115 Finite Element I 3 s.h.
One- and two-dimensional boundary value problems; heat flow, flow flow, torsion of bars, trusses and frames; irosnapmetric mapping, higher order elements; problems; use of commercial software. Prerequisite: 057:019. Same as 053:133.

058:131 Manufacturing Systems 3 s.h.
Manufacturing as systems consisting of computer and microprocessor-based control systems; part design and manufacturing using CAD/CAM, Pro/E, technical quality, and economic trade-offs regarding the design, selection, and implementation of various degrees of computer aiding in manufacturing systems, computer numerical control (CNC) machining, automated material handling, automated assembly, flexible manufacturing systems. Offered spring semesters. Prerequisite: 056:032 or consent of instructor. Same as 056:131.

058:160 Enhanced Design Experience 3 s.h.
Experience working on sponsored design and project development projects scheduled for production; emphasis on practical experience with the complete design process, from conceptualization through prototyping, evaluation, testing, and production; written and oral communication. Prerequisites: 058:086 and consent of instructor.

058:212 Analytical Methods in Fluid/Solid Dynamics 3 s.h.
Methods for exact and approximate solution of differential equations for fluid and rigid-body dynamics; nonlinear equations, chaos, singular perturbation theory, Green's functions, variational methods. Prerequisite: 058:113. Same as 052:212.

058:214 Analytical Methods in Mechanical Systems 3 s.h.
Vector and function spaces; functional and operators in Hilbert spaces; calculus of variations and functional analysis with application to mechanics; finite element methods. Prerequisite: 058:113. Same as 052:214.

058:215 Finite Element II 3 s.h.
Computer implementation; plate and shell elements; mixed and hybrid formulations; nonlinear analysis; recent development; introduction to boundary element method. Prerequisite: 053:123.

Thermal Engineering and Fluids

058:040 Thermodynamics II 3 s.h.
Power and refrigeration cycles; mixtures of gases, psychrometric mixtures; availability, thermodynamics of combustion and chemical equilibrium. Prerequisite: 058:009.

058:045 Heat Transfer 3 s.h.
Principles of heat transfer by conduction, convection, radiation; analytical and numerical methods of solutions; applications to engineering problems. Prerequisites: 224M:034 and 057:025.

058:048 Energy Systems Design 4 s.h.
Principles and design of energy conversion systems, including solar, wind, and geothermal power systems; design of fluid/thermal-fluid system components, modeling and simulation of systems, optimization techniques; design projects. Prerequisites: 058:040 and 058:045.

058:140 Intermediate Thermodynamics 3 s.h.
Thermodynamics principles applied to phase equilibrium, properties of fluids, first and second law, variable conjugation systems, behavior of real fluids, mathematical techniques for thermodynamics. Prerequisite: 052:103 or 058:040. Same as 052:117.

058:143 Computational Fluid and Thermal Engineering 3 s.h.
Governing equations of fluid flow and heat transfer, basic numerical techniques for solution of the governing equations; estimation of accuracy and stability of the approximations; boundary conditions, grid generation; applications to flow and heat transfer in engineering systems, familiarity with software for analysis and design of fluid thermos systems. Prerequisite: 058:045.

058:145 Intermediate Heat Transfer 3 s.h.
Steady and unsteady conduction; forced and natural convection; surface and gaseous radiation; condensation and evaporation; analytical and numerical methods and applications. Prerequisite: 058:045.

058:160 Modeling of Materials Processing 3 s.h.
Manufacturing processes for metals, polymers, semiconductors, processing by casting, solidification, crystal growth, polymer molding and extrusion, welding, heat treatment, application of optical (laser) and electromagnetic energy; processes that use momentum, heat, mass transfer principles; measurement and instrumentation for materials processing, current topics in materials processing. Prerequisite: 058:040 or consent of instructor.

058:174 Fuel Cells 3 s.h.
Introduction to fuel cell design and performance evaluation; thermodynamics, chemical kinetics, effects of phenomena, and reaction fundamentals essential to understanding of the processes and phenomena that pose limits on fuel cell performance. Prerequisites: 058:040 and 058:045.

058:180 Combustion and Propulsion Engineering 3 s.h.
Chemical kinetics, thermodynamic equilibrium, transport equations; thermodynamics of fluid flows; laminar flames; basic gas turbine cycles, propulsion systems—open gas turbine cycles, turboprop, turbofan, turbojet, ramjet, supersonic jets; nozzle flows, contemporary propulsion concepts. Prerequisite: 058:040 or graduate standing.

058:160 Intermediate Mechanics of Fluids 3 s.h.
Basic concepts and definitions; pressure distribution in a fluid; governing equations and boundary conditions; integral and differential analysis; dimensional analysis and similarity; experimental analysis; laminar and turbulent internal and external flows, potential flows, engineering applications. Prerequisite: 057:020. Same as 053:169.

058:162 Experimental Methods in Fluid Mechanics and Heat Transfer 3 s.h.
Review of theory; importance of experiments; modeling and scaling laws; experimental environment and facilities; measurements at full scale and on scaled models; wind tunnel flows; and heat transfer without heat transfer. Prerequisites: 057:020 and 058:040.

058:245 Conductive Heat Transfer 3 s.h.
Heat conduction and diffusive transport of mass and momentum; phenomenological laws and analytical solvers; transport properties; steady, transient, moving boundary problems; analytical, numerical solution techniques; inverse heat conduction, coupled heat and mass transport, conduction in multifluid and multiphase systems. Prerequisites: 058:145.

058:246 Convective Heat Transfer 3 s.h.
Convective heat transfer, analysis of forced and free convection; differential and integral formulation of boundary layers; heat, mass, momentum transfer in laminar and turbulent flows inside tubes and external surfaces; forced and free convection; convection at high velocities; heat transfer with phase change. Prerequisite: 058:145.

058:247 Radiative Heat Transfer 3 s.h.
Radiant energy transport and analysis of radiative interchange among surfaces separated by nonparticipating and participating media; radiation properties of solids, gases; symmetry, combined radiation-conduction and radiation-convective heat transfer. Prerequisite: 058:145.

058:248 Combustion Theory 3 s.h.
Laminar flame theory; turbulent combustion; spray combustion; thermal ignition; pollutant formation, oxidation, combustion diagnostics. Prerequisites: 058:145, 058:160, and graduate standing.

058:260 Viscous Flow 3 s.h.
Equations of viscous flow; classical analytical and numerical solutions; flow regimes and approximations; laminar boundary layers—equations, solution methods, applications; stability theory and transition, incompressible turbulent flow—mean flow and Reynolds-stress equations, modeling, turbulent boundary layers and free shear flows. Prerequisite: 058:160. Same as 053:276.

058:262 Inviscid Flow 3 s.h.
Derivation of governing equations for fluid flow; general theorems for motion of inviscid, incompressible flows; solution techniques for two- and three-dimensional irrotational flows; forces and moments acting on immersed bodies; inviscid flow with vorticity; inviscid compressible flow; numerical methods for solution of inviscid flows. Prerequisite: 058:160. Same as 053:277.

058:264 Vortex Dynamics 3 s.h.
Dynamics of vortex transport in incompressible flows; vortex patches, sheets, rings, vortex filaments, helical vortex flows; vortex-based computational methods; vortex reconnection, breakdown; applications to wake flows, turbulent coherent structures and aerodynamics. Prerequisite: 058:262.

058:266 Interfacial Flows and Transport Processes 3 s.h.
Physics of fluid interfaces and numerical techniques to simulate interface dynamics; interfacial fluid flow coupling with thermal-fluid transport, from molecular interactions to continuum approximations; development of computer code segments to track and represent interface flow interactions. Prerequisites: 058:145 and 058:160.

058:278 Multiphase Flow and Transport 3 s.h.
Thermodynamic and mechanical aspects of interfacial phenomena and phase transitions; nucleation, phase-change, species transport, particulate flows, liquid-veg system, solidification, porosity, media. Prerequisites: 058:145 and 058:160.
058:068 Turbulent Flows 3 s.h.

058:069 Computational Fluid Dynamics and Heat Transfer 3 s.h.

058:269 Advanced Topics in Thermal and Fluid Engineering 3 s.h.

Mechanical Systems

058:032 Design for Manufacturing 3 s.h.

058:052 Mechanical Systems 3 s.h.

058:055 Mechanical Systems Design 4 s.h.

058:133 Control Theory 3 s.h.

058:134 Computer-Based Control Systems 3 s.h.

058:150 Intermediate Mechanics of Deformable Bodies 3 s.h.

058:152 Vehicle Dynamics and Simulation 3 s.h.

058:153 Fundamentals of Vibrations 3 s.h.

058:154 Intermediate Kinematics and Dynamics 3 s.h.

058:156 Mechanics of Robotics 3 s.h.

058:279 Continuum Mechanics and Elasticity 3 s.h.

058:295 Advanced Topics in Mechanical Systems 3 s.h.

Graduate Seminars, Advanced Topics, Research

058:190 Readings in Mechanical Engineering 1 s.h.

058:191 Graduate Seminar: Mechanical Engineering 1 s.h.

058:195 Contemporary Topics in Mechanical Engineering 1 s.h.

058:196 Individual Investigations: Mechanical Engineering 1 s.h.

Industrial Engineering

Special Topics

056:000 Cooperative Education Training Assignment: Industrial Engineering 0 s.h.

058:020 Industrial Engineering Sophomore Seminar 0 s.h.

058:091 Professional Seminar: Industrial Engineering 0 s.h.

058:098 Industrial Investigations: Industrial Engineering 0 s.h.
Manufacturing

056:032 Design for Manufacturing 3 s.h.
Fundamentals of design, engineering graphics, and manufacturing processes; computer-aided design (CAD) and computer-aided manufacturing (CAM); typical industrial processes, including casting, welding, machining, forming, laboratory exercises and projects. Same as 058:032.

056:131 Manufacturing Systems 3 s.h.
Manufacturing as systems consisting of computer and microprocessor-based control systems; part design and manufacture using CAD/CAM, Pro/E, technical, quality, and economic trade-offs regarding the design, selection, and implementation of various sub-systems of computer aided in manufacturing systems; computer numerical control (CNC) machining, automated material handling, automated assembly, flexible manufacturing systems. Prerequisite: 056:032 or consent of instructor. Same as 058:131.

056:132 Introduction to Industrial Robotics 3 s.h.
Operation and control of robot systems; robotic sensors and data acquisition subsystems; machine vision; software for robot control; design of robotic work cells; laboratory projects; manufacturing process control theory and application. Prerequisite: 056:006.

056:134 Process Engineering 3 s.h.
Methodologies, algorithms, and tools for process modeling, analysis, and reengineering; modeling issues in product and component design, production and process modularity, quality, reliability, agility. Prerequisite: 056:171.

056:138 Knowledge Discovery and Management 3 s.h.
Introduction to data analysis methods, data mining tools and techniques, data engineering, data warehousing, and evolutionary computation; case studies in applications of knowledge discovery and management in engineering, medicine, and service applications. Prerequisite: 225:039 or equivalent.

056:231 Computer-Integrated Manufacturing 3 s.h.
Design and operational issues related to the integration of computers in manufaturing systems; theoretical and applied topics. Offered fall semesters.

056:233 E-Commerce: Product Development 3 s.h.
Computer and expermental methods for analyzing product development using electronic commerce; software for product development; information systems; collaborative design. Prerequisite: 056:131 or 056:231 or 056:234.

056:234 Information Systems for Design and Manufacturing 3 s.h.
Information systems that support product and process design. Prerequisite: 056:131 or 056:231 or 056:233.

056:235 Computational Intelligence 3 s.h.
Concepts, models, algorithms, and tools for development of intelligent systems; data mining, expert systems, neural networks for engineering, medical and legal applications. Prerequisite: 056:171. Same as 096:313.

056:238 Evolutionary Computation 3 s.h.
Evolutionary computation, genetic programming, development of evolutionary systems for applications in industry, medicine, and nonstructured environments; case studies. Prerequisite: 056:171.

Human Factors/Ergonomics

056:144 Human Factors 3 s.h.
Design of human-machine systems; development of optimum work environments by applying principles of behavioral science and basic knowledge of human capacities and limits. Prerequisite: 031:001.

056:147 Ergonomics 3 s.h.
Ergonomic design of jobs and products in an industrial and consumer market setting; principles of good design, examples of poor job and product design, principles of work sampling, usability studies, performance rating, siting and planning of workstations, hand tool design, ergonomic design in transportation, related group project.

056:148 Human-Centered System Design 3 s.h.
Design strategies for creating customer-centered systems; interview and observation techniques for gathering customer requirements and client work models; tools for restructuring work and prototype development. Prerequisite: 056:144.

056:240 Human Performance in Engineering Systems 3 s.h.
Human performance limits and capabilities relevant to design of engineering systems; focus on cognitive limits associated with information processing. Prerequisites: 056:144 and 056:147.

056:241 Research Methods in Human Factors 3 s.h.
Logic and methods for research and for analysis and evaluation of complex human-machine systems; advanced techniques for enhancement of human interaction with advanced information technology; emphasis on computer supported analytics techniques and innovative design, understanding of how technology affects safety, performance, user acceptance. Prerequisite: 056:240 or intermediate statistics course or consent of instructor.

056:242 Human/Computer Interaction 3 s.h.
Development of human factors principles in the design of computer interfaces. Prerequisite: 056:240 or consent of instructor.

056:243 Modeling User Performance 3 s.h.
Modeling techniques that support design and analysis of the human role in complex systems; process and concepts associated with model development and application. Corequisite: 056:240 or consent of instructor.

056:244 Human Factors in Transportation 3 s.h.
Human capabilities and limitation in transportation contexts; human factors design from automobiles to spacecraft; transportation environments, air traffic control, crew resource management, related semester project. Corequisite: 056:240 or 056:241 or consent of instructor.

056:244 The Design of Virtual Environments 3 s.h.
Development of techniques for designing and creating three-dimensional representations of information for simulation, scientific visualization, and engineering; emphasis on human factors issues, software. Corequisite: 056:240 or consent of instructor.

Engineering Management

056:054 Engineering Economy 3 s.h.
Basic concepts of engineering economy: time value of money, cash flow equivalence, depreciation, tax considerations, continuous cash flows, cost accounting overview; main analysis techniques—present worth, uniform annual cost, rate of return, benefit/cost ratio, replacement and break-even analysis. Corequisite: 225:039.

056:050 Leadership in Engineering 1 s.h.
How to balance aspects of college life, explore a personal mission, and set priorities. Prerequisite: consent of instructor.

056:150 Information Systems Design 3 s.h.
Structure and design of computer-based information systems; concepts of information systems, decision making, computer hardware, software, data structures; methods for determining system requirements; designing, implementing, evaluating, managing information systems; applied projects. Prerequisites: 057:017 and 056:096.

056:153 Engineering Administration I 3 s.h.
Current readings, cases in engineering management; methods for organizing, planning, funding, controlling engineering efforts; nature of the engineering and management function. Offered fall semesters. Prerequisite: 056:054.

Quality and Production Control

056:160 Operational Systems Design 4 s.h.
Projects involving the design of products and related operational systems in an industrial or service organization, including associated entrepreneurial or intrapreneurial planning. Offered spring semesters. Prerequisites: 056:054, 056:134, and senior standing.

056:161 Enhanced Design Experience 3 s.h.
Real world, team design experience; application of industrial engineering and knowledge skills to product design and related operational systems; may include multidisciplinary work with engineers at major regional companies. Prerequisite: senior standing.

056:162 Quality Control 3 s.h.
Basic techniques of statistical quality control; application of control charts for process control variables; design of inspection plans and industrial experimentation; modern management aspects of quality assurance systems. Offered spring semesters. Prerequisite: 225:030 or 225:039. Same as 225:133.

056:163 Quality Engineering I 3 s.h.
Engineering techniques for designing quality into manufactured products, processes; design, analysis of multifactor experiments, economics of reducing variation, critique of Taguchi methods. Offered fall semesters. Corequisite: 056:162 or consent of instructor.

056:166 Production Systems 3 s.h.
Models for design and operation of manufacturing systems; equipment selection, machine layout, group technology, process planning, production planning and scheduling, just-in-time concepts, concurrent engineering, intelligent systems. Offered spring semesters. Prerequisites: 056:032 and 056:171.

Operations Research and Applied Statistics

056:171 Operations Research 4 s.h.
Operations research models and applications emphasizing both deterministic and probabilistic models: linear programming, duality, parametric analysis, dynamic programming, Markov chains, queuing theory. Offered fall semesters. Prerequisites: 22M:033 and 225:039.

056:176 Applied Linear Regression 3 s.h.
Regression analysis with focus on applications; model formulation, checking, selection, interpretation and presentation of analysis results; simple and multiple linear regression; ANOVA; hands-on data analysis with SAS software. Prerequisite: 225:030 or 225:039 or 225:120 or equivalent. Same as 225:152.

056:178 Digital Systems Simulation 3 s.h.
Simulation modeling and analysis; emphasis on construction of models, interpretation of modeling results, input and output analysis; modeling discrete, continuous and hybrid systems; construction of model-related databases—roll-on-on usage of ARENA simulation software, manufacturing, healthcare, and service applications. Prerequisite: 225:030 or 225:039 or prerequisite standing.

056:181 Internet Systems Design 3 s.h.
The Internet's background, how the net operates and can be used; design of Internet-based systems, programming in an Internet-based environment. Corequisite: 057:017 or consent of instructor.

056:186 Health Informatics I 3 s.h.
Technological tools that support health care administration, management, and decision making. Graduate standing or consent of instructor required. Same as 068:225, 021:275, 050:283, 051:187, 074:191, 096:283, 174:226.

056:270 Linear Programming 3 s.h.
Mathematical models, theory, and algorithms for linear optimization, including variants of the simplex algorithm, interior-point algorithms, duality theory, post-optimality analysis, decomposition of large-scale problems, piece-wise linear programming. Prerequisite: 056:171 or equivalent.

056:271 Nonlinear Programming 3 s.h.
Mathematical models, theory, algorithms for constrained and unconstrained optimization, nonlinear, geometric, quadratic, dynamic programming; optimality conditions; aspects of duality theory. Prerequisite: 056:171 or equivalent.

056:272 Integer Programming and Network Flows 3 s.h.
Theory, algorithms, applications for combinatorial optimization problems, including integer and mixed-integer mathematical programming problems as well as problems formulated in a network or graph setting, including routing of vehicles, location of facilities in networks and scheduling. Offered fall semesters. Prerequisite: 056:171 or equivalent.

056:273 Stochastic Systems 3 s.h.
Probabilistic operations research models and algorithms, with emphasis on applications in manufacturing and production planning, random processes, Markov chains and applications; probabilistic dynamic programming, Markov decision problems; queuing models. Prerequisites: 056:171 and an introductory course in probability models.

056:287 Health Informatics II 3 s.h.
Journal articles on health informatics topics reviewed in seminar format with several faculty members; student group projects. Prerequisite: 056:186. Same as 021:280, 051:189, 074:192, 096:289.

Graduate Seminars, Advanced Topics, Research

056:191 Graduate Seminar: Industrial Engineering 0 s.h.
Recent advances and research in industrial engineering presented by guest lecturers, faculty, students. Prerequisite: graduate standing.
056:195 Contemporary Topics in Industrial Engineering
New topics or areas of study not offered in other industrial engineering courses; topics based on faculty/student interest.
Prerequisite: senior standing.

056:198 Individual Investigations: Industrial Engineering
Individual projects for industrial engineering graduate students: laboratory study, engineering design, analysis and simulation of an engineering system, computer software development, research.
Prerequisites: graduate standing and consent of adviser.

056:199 Research: Industrial Engineering M.S.
Thesis
Experimental and/or analytical investigation of an approved topic for partial fulfillment of requirements for M.S. with thesis in industrial engineering. Prerequisites: graduate standing and consent of adviser.

056:295 Advanced Topics in Industrial Engineering
Discussion of current literature in industrial engineering.
Prerequisite: consent of instructor.

056:299 Research: Industrial Engineering Ph.D.
Dissertation
Experimental and/or analytical investigation of an approved topic for partial fulfillment of requirements for Ph.D. in industrial engineering. Prerequisite: consent of adviser.
**Graduate College**

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**Dean:** John C. Keller  
**Associate deans:** Sandra Barkan, Dale Eric Wurster  
**Web site:** [http://www.grad.uiowa.edu](http://www.grad.uiowa.edu)
Degrees Offered

The Graduate College confers the Master of Arts (M.A.), Master of Science (M.S.), Master of Accountancy (M.Acc.), Master of Arts in Teaching (M.A.T.), Master of Computer Science (M.C.S.), Master of Fine Arts (M.F.A.), Master of Health Administration (M.H.A.), Master of Physical Therapy (M.P.T.), Master of Public Health (M.P.H.), Educational Specialist (Ed.S.), Master of Science in Nursing (M.S.N.), Master of Social Work (M.S.W.), Master of Physician Assistant Studies (M.P.A.), Doctor of Philosophy (Ph.D.), Doctor of Musical Arts (D.M.A.), Doctor of Physical Therapy (D.P.T.), and Doctor of Audiology (Au.D.) degrees.

The college currently confers degrees in the following major fields.

Accounting—M.Acc., Ph.D.
African American World Studies—M.A.*
American Studies—M.A.*, Ph.D.
Anatomy and Cell Biology—M.S., Ph.D.
Anthropology—M.A.*, Ph.D.
Applied Mathematical and Computational Sciences—Ph.D.
Art—M.A., M.F.A.
Art History—M.A.*, Ph.D.
Asian Civilizations—M.A.*
Astronomy—M.S.*
Biochemistry—M.S., Ph.D.
Biology—M.S.*, Ph.D.
Biomedical Engineering—M.S.*, Ph.D.
Biostatistics—M.S.*, Ph.D.
Business Administration—M.A.*, Ph.D.
Chemical and Biochemical Engineering—M.S.*, Ph.D.
Chemistry—M.S.*, Ph.D.
Civil and Environmental Engineering—M.S.*, Ph.D.
Classics—M.A.*, Ph.D.
Communication Studies—M.A.*, Ph.D.
Community and Behavioral Health—M.S., Ph.D.
Comparative Literature—M.A.*, Ph.D.
Comparative Literature-Translation—M.F.A.
Computer Science—M.S.*, M.C.S.*, Ph.D.
Dance—M.F.A.
Dental Public Health—M.S.
Economics—M.A.*, Ph.D.
Education—M.A.*, M.A.T.*, Ed.S.*, Ph.D.
Electrical and Computer Engineering—M.S.*, Ph.D.
English—M.A.*, M.F.A., Ph.D.
Epidemiology—M.S.*, Ph.D.
Exercise Science—M.S.*, Ph.D.
Film and Video Production—M.A.*, M.F.A.
Film Studies—M.A.*, Ph.D.
Free Radical and Radiation Biology—M.S.*, Ph.D.
French—M.A.*, Ph.D.
Genetics—Ph.D.
Geography—M.A.*, Ph.D.
Geosciences—M.S.*, Ph.D.
German—M.A.*, Ph.D.
Greek—M.A.*
Health and Sport Studies—M.A.*, Ph.D.
Health Management and Policy—M.H.A.*, Ph.D.
History—M.A.*, Ph.D.
Immunology—Ph.D.
Industrial Engineering—M.S.*, Ph.D.
Journalism—M.A.*
Latin—M.A.*
Leisure Studies—M.A.*
Library and Information Science—M.A.*
Linguistics—M.A.*, Ph.D.
Mass Communications—Ph.D.
Mathematics—M.S.*, Ph.D.
Mechanical Engineering—M.S.*, Ph.D.
Microbiology—M.S., Ph.D.
Molecular Biology—Ph.D.
Music—M.A.*, M.F.A., D.M.A., Ph.D.
Neuroscience—Ph.D.
Nursing—M.S.N.*, Ph.D.
Occupational and Environmental Health—M.S., Ph.D.
Operative Dentistry—M.S.
Oral and Maxillofacial Surgery—M.S.
Oral Science—M.S., Ph.D.
Orthodontics—M.S.
Pathology—M.S.*
Pharmacology—M.S., Ph.D.
Pharmacy—M.S.*, Ph.D.
Philosophy—M.A.*, Ph.D.
Physical Rehabilitation Science—Ph.D.
Physician Assistant Studies—M.P.A.*
Physics—M.S.*, Ph.D.
Physiology and Biophysics—M.S.*, Ph.D.
Political Science—M.A.*, Ph.D.
Preventive Medicine and Environmental Health—M.S.*, M.P.H.*, Ph.D.
Psychology—M.A.*, Ph.D.
Public Health—M.P.H.*
Religious Studies—M.A.*, Ph.D.
Russian—M.A.*
Science Education—M.S.*, Ph.D.
Second Language Acquisition—Ph.D.
Social Studies—M.A.*
Social Work—M.S.*, Ph.D.
Sociology—M.A.*, Ph.D.
Spanish—M.A.*, Ph.D.
Speech and Hearing Science—Ph.D.
Speech Pathology and Audiology—M.A.*, Au.D.
Statistical Genetics—Ph.D.
Statistics—M.S.*, Ph.D.
Stomatology—M.S.
Theatre Arts—M.F.A.
Translational Biomedicine—M.S.*, Ph.D.
Urban and Regional Planning—M.A.*, M.S.*
Women’s Studies—Ph.D.

*Degree offered with or without thesis
**Nonthesis degree
***Student entry suspended

Interdisciplinary Degree Programs

The Graduate College participates in a number of University of Iowa interdisciplinary degree programs. Detailed information about the following master’s and doctoral degree programs is provided later in this section of the Catalog: applied mathematical and computational sciences, genetics, immunology, library and information science, molecular biology, neuroscience, second language acquisition, translational biomedicine, and urban and regional planning.

Interdisciplinary Master’s and Doctoral Programs

In addition to the degree programs listed above, the graduate faculty has authorized the awarding of interdisciplinary master’s and doctoral degrees. Students seeking approval for interdisciplinary master’s and doctoral programs must previously have been admitted to and enrolled in a departmental program in the Graduate College. See sections X.A. and XII.D. in “Rules and Regulations of the Graduate College” in this section of the Catalog.

Joint Degree Programs

Joint Law and Graduate Degrees

Joint programs under which students can pursue degrees simultaneously in the College of Law and the Graduate College have been developed with the law college and a number of departments in the Graduate College. See the College of Law section of the Catalog.

Joint Programs Offered Through the Graduate College

Various joint programs have been developed whereby students work simultaneously toward two advanced degrees. Consult the appropriate sections of the Catalog for more information. Established joint programs include business administration/library and information science; health management and policy/business administration; health management and policy/urban and regional planning; social
work/urban and regional planning; occupational and environmental health/urban and regional planning; public health/nursing; public health/nursing; and business administration/nursing.

**Joint B.S./M.S. Program in Biomedical Engineering**

The Graduate College and the College of Engineering offer a joint B.S./M.S. program in biomedical engineering. The program allows students to take a limited number of courses that count toward both the B.S. and M.S. degree requirements, to attend and participate in the departmental graduate seminar, and to work on a master's thesis or project research before they have been awarded a baccalaureate degree. See the College of Engineering section of the Catalog.

**Joint B.S./M.S. Program in Industrial Engineering**

The Graduate College and the College of Engineering offer a joint B.S./M.S. program in industrial engineering. The program allows students to begin earning graduate credit (6 s.h. may be applied toward both the B.S. and M.S. degree requirements), to attend one of the department's graduate seminars, and to work on a master's thesis research before they have been awarded a baccalaureate degree. See the College of Engineering section of the Catalog.

**Joint B.A./M.A. Program in Linguistics**

A joint B.A./M.A. program in linguistics with a specialization in Teaching English as a Second Language (TESL) is offered by the Graduate College and the College of Liberal Arts and Sciences. The program permits students to take a limited number of courses that fulfill both B.A. and M.A. degree requirements and provides for early entrance to advanced courses in linguistics. Joint B.A./M.A. students also may gain experience teaching ESL at the college level early in their graduate careers. See “Linguistics” in the College of Liberal Arts and Sciences section of the Catalog.

**Joint B.S./M.S. Program in Mechanical Engineering**

The Graduate College and the College of Engineering offer a joint B.S./M.S. program in mechanical engineering. The program allows students to begin earning graduate credit (6 s.h. may be applied toward both the B.S. and M.S. degree requirements), to attend a graduate seminar, and to participate in master's research before they have been awarded a baccalaureate degree. See the College of Engineering section of the Catalog.

**Joint D.V.M./M.P.H. Program**

The UI Graduate College and College of Public Health, in collaboration with Iowa State University's College of Veterinary Medicine, offer the joint D.V.M./M.P.H. program. This dual degree requires students to be accepted into the D.V.M. program as a condition of acceptance into the combined degree program. Once admitted, a student may use course work credit to fulfill elective requirements in both programs. Students may apply 18 s.h. of public health course work toward the D.V.M. degree (which requires a total of 150 s.h.), and 9 s.h. of veterinary medicine degree course work toward the M.P.H. degree (which requires a total of 39 s.h.). The degrees generally are awarded conjointly. See the College of Public Health section of the Catalog.

**Joint M.D./M.P.H. Program**

The M.D./M.P.H. degree program is offered jointly by the Graduate College, the Carver College of Medicine, and the College of Public Health. The program provides students the opportunity to accrue credits toward the Master of Public Health degree while pursuing the Doctor of Medicine. The degrees are awarded conjointly. See the Carver College of Medicine and College of Public Health sections of the Catalog.

**Joint M.S.N./M.P.H. Program**

The Graduate College, the College of Nursing, and the College of Public Health offer the joint M.S.N./M.P.H. program for students interested in preparing for professional activities in nursing and public health. In addition to core and elective course work, students are required to complete work in one of four M.S.N. focus areas and to participate in a capstone experience. The M.S.N. and M.P.H. degrees are awarded jointly. See the College of Nursing and College of Public Health sections of the Catalog.

**Joint Pharm.D./M.P.H. Program**

The Graduate College, College of Pharmacy, and College of Public Health offer the Doctor of Pharmacy/Master of Public Health program. The joint program provides formal education and training in public health for pharmacy students, enabling them to develop expertise in public health related to pharmacotherapy, health promotion, disease prevention, and medication safety. See the College of Pharmacy and College of Public Health sections of the Catalog.

**Library Science/Book Studies**

The joint M.A. in library and information science and Certificate in Book Studies/Book Arts and Technologies prepares students for careers in special collections librarianship. The 51 s.h. program trains individuals to manage varied types of special collections, such as rare books, manuscripts, archives, graphics, music, and ephemera. Successful completion of the program is noted on the student's transcript. Contact the Center for the Book for more information.

**Medical Scientist Training Program**

The Medical Scientist Training Program (MSTP) is an interdisciplinary M.D./Ph.D. program offered jointly by the Carver College of Medicine and the Graduate College. See “Medical Scientist Training Program” in the Carver College of Medicine section of the Catalog.

**Certificate Programs**

The Graduate College participates in a number of University of Iowa certificate programs. Detailed information about the certificate programs in the Project on Rhetorics of Inquiry and the Transportation Studies Program is provided later in this section of the Catalog.

**Advanced Practice Nursing**

The post-master's degree certificate program in advanced practice nursing allows for advanced clinical training in four specialty tracks: pediatric nurse practitioner, adult/gerontology nurse practitioner, family nurse practitioner, and psychiatric/mental health nursing. Certificate requirements include advanced clinical core courses and a sequence of specialty courses. Successful completion of the specialty sequence qualifies a student to sit for certification as a nurse practitioner and/or a clinical nurse specialist. Completion of the certificate program is noted on the student's transcript. See the College of Nursing section of the Catalog.

**Aging Studies**

The Aging Studies Program is a multidisciplinary nondegree certificate program administered by the College of Liberal Arts and Sciences in cooperation with other colleges of The University of Iowa. The 21 s.h. program is designed to complement graduate degree programs for students with academic, professional, research, or service career interests in aging. An entry is made on a student's transcript certifying completion of an approved curriculum in aging studies. See “Aging Studies Program” in the College of Liberal Arts and Sciences section of the Catalog.

**American Indian and Native Studies**

The American Indian and Native Studies Program offers an interdisciplinary certificate program focusing on the histories, cultures, languages, arts, crafts, beliefs, political and social organizations, economies, geographies, literatures, and contemporary legal and political concerns of Native Americans of the United States as well as other Indigenous peoples of the Western Hemisphere. Successful completion of the program is noted on the student's transcript. See “American Indian and Native Studies” in the College of Liberal Arts and Sciences section of the Catalog for a list of faculty and program description.
Book Studies/Book Arts and Technologies

The certificate program in book studies/book arts and technologies offers an interdisciplinary approach to the study of the relationship between the book in culture and book arts and technologies. It also provides the opportunity for focused laboratory or academic investigation into either area. Successful completion of the program is noted on the student's transcript. See “Center for the Book” in the College of Liberal Arts and Sciences section of the Catalog.

Global Health Studies

The interdisciplinary Global Health Studies Program emphasizes international health problems and solutions and compares U.S. and foreign health practices. Certificate requirements include core courses, electives, foreign study and/or internship, a research project, and foreign language skills. Students do not need special health science courses to participate. Completion of the certificate program is noted on the student's transcript. See “Global Health Studies” in the College of Liberal Arts and Sciences section of the Catalog.

Graduate Teaching Certificate

The certificate program in graduate teaching provides overarching administration and structure that complements discipline-oriented graduate teaching preparation programs. The 12 s.h. program has three parts: course work, teaching experience, and preparation of a teaching portfolio. It is open only to graduate students enrolled in degree programs. Formal application is made through the Graduate College. Completion of the certificate is noted on the student's transcript.

Health Informatics

The certificate program in Health Informatics is an interdisciplinary collaboration among the health sciences, engineering, computer science, information science, management science, and statistics. Students in this program are trained to analyze health care data, evaluate information and knowledge, and develop study skills in health care research, education, and practice. Certificate students complete a minimum of 20 s.h., including Health Informatics I and II and approved electives. The certificate may be earned in conjunction with a master's or a doctoral degree or as postgraduate study. Completion of the certificate program is noted on the student's transcript. See the College of Nursing and School of Library and Information Science sections of the Catalog.

Nursing Informatics

The certificate program in nursing informatics focuses on data, information, and knowledge of management in nursing. It familiarizes students with the development, support, and evaluation of applications, tools, processes, and structures that help nurses manage data in direct patient care and administrative and management support systems. The program is available for master's, post-master's, doctoral, and postdoctoral students. Completion of the certificate program is noted on the student's transcript. See the College of Nursing section of the Catalog.

Nursing Service Administration

Nursing Service Administration is a certificate program designed to upgrade the skills and expertise of nurses practicing in management and nursing administration. Certificate requirements include advanced nurse manager core courses and related support courses. The program is open to postbaccalaureate, master's, postmaster's, and doctoral students. Completion of the certificate program is noted on the student's transcript. See the College of Nursing section of the Catalog.

Sacred Music

Sacred Music is an interdisciplinary certificate program with course offerings in sacred music, choral conducting/literature, keyboard, voice, religion, and art and art history. Students may earn the 25 s.h. certificate while working toward a graduate degree, or with prior admission to the Graduate College and consent of the faculty adviser for the certificate, they may complete the certificate apart from pursuit of a graduate degree. Successful completion of the certificate program is entered on the student's transcript. Contact the School of Music.

Statistical Genetics

The certificate program in statistical genetics prepares master's-level students to conduct genetic data analyses. The program may be completed following receipt of a master's degree in biostatistics or a related field. Certificate requirements include four courses plus a preceptorship, for a total of 16 s.h. Successful completion of the program's requirements is entered on the student's transcript. See the College of Public Health section of the Catalog.

Film and Critical Studies in Paris

The University of Iowa is one of a consortium of 21 colleges and universities associated with the Council on International Educational Exchange (CIEE), which sponsors the Film Studies Program and the Contemporary Criticism and Culture Program. These are two unique academic opportunities offered at the Centre Universitaire Américain du Cinéma et de la Critique à Paris.

The Film Studies Program is designed to explore film theory and analysis—not to train filmmakers or technicians. The curricular program provides courses and seminars in film theory, formal structures, history, and ideology. Participants study the relationships between film and other art forms, film culture, film and language, and film and psychoanalysis. Students discuss the evolution of the early cinema; the silent films of Griffith, Lang, Eisenstein, and Keaton; the classic Hollywood film; French cinema during and after the transition to sound; and European and American avant-garde cinemas. Participants study the works of Metz, Freud, Barthes, Lacan, Althusser, Foucault, and others to gain an understanding of contemporary French culture, mass media, and the visual arts.

The Contemporary Criticism and Culture Program focuses on recent developments in French political thought and social institutions, linguistics, social sciences, and literary theory. It draws on recent theoretical concepts in the fields of linguistics, psychoanalysis, anthropology, history, and philosophy to analyze verbal and audiovisual representations in literature, painting, photography, film, and television. The interdisciplinary nature of this program makes it relevant not only to French majors but also to students of other disciplines concerned with the problems of criticism and culture. It is of particular value to those who want to explore the applicability of modernist French theory to a variety of disciplines.

The program also permits specialization in history, characterized by the application to historical research of insights from other fields, such as linguistics, cultural geography, anthropology, sociology, and economics. Particularly distinctive in the French historical approach has been a preoccupation with the long-term evolution of populations and the social, economic, and cultural development of groups of ordinary people, seen in their urban or regional contexts.

Students may concentrate in one of these programs entirely or develop an individual program combining elements from both study center components.

Participating students are registered in the University of Paris III—Censier and are eligible to take selected courses within the University of Paris as well as those sponsored directly by the center. The program is open to both undergraduate and graduate students from The University of Iowa. For more information, contact the Department of Cinema and Comparative Literature.

Research Resources

Many of the University's diverse research activities are centrally administered by the Office of the Vice President for Research, which has a cooperative relationship with the Graduate College. See “Vice President for Research” in the Catalog.

Financial Support

Approximately half of the University's graduate students receive some form of University-administered financial assistance. Eligibility requirements and application procedures are set forth in “Section VII. Graduate Appointments” in “Rules and Regulations of the Graduate College” in this section of the Catalog. The following are the primary sources of assistance.

TEACHING AND RESEARCH ASSISTANTSHIPS

Available in most departments; assistantship stipends typically range between $15,490 for a half-time academic-year appointment and
of $14,000 plus tuition and fees for up to two academic years. For master’s students, a ten-month stipend of $18,000 plus tuition and fees for the academic year plus full tuition and fees for as many as three year-round basis; typical stipends are $21,000 per year. The GRE, or the GMAT, may, depending on departmental policy, be admitted if they meet all other requirements. The GRE, or the GMAT, must be taken before the end of the student’s first session of enrollment. The test is given at test centers established under the direction of Educational Testing Service, Princeton, New Jersey. The judgment of acceptable levels of performance on this test and its weight in the decision on admission of a student is left to the departments. Some departments in fields where GRE Subject [Advanced] Tests are available require these in addition to the General [Aptitude] Test. Inquiries about the General [Aptitude] Test may be directed to University Evaluation and Examination Service, and inquiries about the requirement of the Subject [Advanced] Test should be addressed to the executive of the department in which the applicant is interested.

C. ENGLISH FOR INTERNATIONAL STUDENTS

Prior to consideration for admission, international students whose native language is other than English must take and pass TOEFL (Test of English as a Foreign Language), unless they have received a degree from an accredited college or university in the United States, the United Kingdom, Canada (except Quebec), Australia, or New Zealand. The examination is given at various times of the year and in many centers throughout the world. Inquiries should be addressed to the director, TOEFL, Educational Testing Service, Princeton, New Jersey 08541.

International students transferring from unfinished degree programs of other universities other research funds, vary from $500 to $15,000; doctoral students in any discipline may apply.

Seashore and Ballard Dissertation Fellowships
For doctoral students in the humanities who have completed all doctoral degree requirements except the dissertation; nominated by departments; $1,500 per month plus tuition (for up to 2 s.h.), fees, and a health insurance allowance; up to 12 months of funding.

Social Sciences Dissertation-Year Fellowships
For doctoral students in the social sciences who have completed all doctoral degree requirements except the dissertation; nominated by departments; $1,500 per month plus tuition (for up to 2 s.h.), fees, and a health insurance allowance; up to 12 months of funding.

Scholarships
Scholarships provide up to full tuition and fees.

Summer Intensive Language Scholarships
Tuition awards for summer intensive study of non-English language needed to pursue a chosen dissertation topic.

Graduate Student Travel Awards
Reimbursements for travel by graduate students to present research and scholarship results to professional conferences; competitive across disciplines; awards vary from $100 to $300; funds administered by the Graduate Student Senate and the Graduate College.

OTHER SOURCES
For other sources of financial support, contact the Office of Student Financial Aid.

Many departments offer additional support through traineeships, part-time employment in research, or part-time teaching appointments. The Office of the Vice President for Research maintains a library of information on public and private agencies that provide funds for research and graduate study. Much material has been collected concerning awards for overseas study.

Graduate Student Senate
The Graduate Student Senate is the University graduate student body representative organization. Representatives are elected annually from each University department that has a graduate degree program. The senate’s primary purpose is to serve the interests of the graduate student body in matters affecting its welfare. The Senate advises the dean of the Graduate College on matters pertaining to the graduate student body in matters affecting its welfare. The Senate and the Graduate College.

Rules and Regulations of the Graduate College
The following text is from the Manual of Rules and Regulations of the Graduate College. The most updated version of this manual is available online; see “Current Students” on the Graduate College web site.

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 formal admission from the director of Admissions. Applicants may obtain the proper forms from the Office of Admissions. Prospective students may also download the application or apply online from the admissions web site.

In addition to these forms, official transcripts, test scores, and other supporting material must be submitted by the designated deadline prior to the session in which admission is expected. Specific deadline dates will be established by the dean of the Graduate College and the director of Admissions and printed in the Catalog and elsewhere.

B. GRADUATE RECORD EXAMINATION
All applicants prior to consideration for admission should take the General (Aptitude) Test of the Graduate Record Examination (GRE) or, for applicants to graduate programs in business administration, the Graduate Management Admission Test (GMAT). Applicants for whom admission data are complete, with the exception of scores on the GRE or the GMAT, may, depending on departmental policy, be admitted if they meet all other requirements. The GRE, or the GMAT, must be taken before the end of the student’s first session of enrollment. The test is given at test centers established under the direction of Educational Testing Service, Princeton, New Jersey. The judgment of acceptable levels of performance on this test and its weight in the decision on admission of a student is left to the departments. Some departments in fields where GRE Subject [Advanced] Tests are available require these in addition to the General [Aptitude] Test. Inquiries about the General [Aptitude] Test may be directed to University Evaluation and Examination Service, and inquiries about the requirement of the Subject [Advanced] Test should be addressed to the executive of the department in which the applicant is interested.

T. Anne Cleary International Research Fellowships
For doctoral students who have completed their comprehensive examinations; to be used for dissertation research outside of the United States; the awards, which are meant to supplement
in the United States who have not taken this examination, or who have received a score lower than the minimum established by the Graduate College dean, must take the TOEFL examination and receive a passing score prior to consideration for admission.

Students who barely pass the established minimum on the TOEFL will be required to sit for an English evaluation upon arrival in Iowa City. The Graduate College will require these students to take and pass recommended course work in English usage at The University of Iowa designed especially for international students.

D. EARLY ADMISSION

A student who is within 6 s.h. of having satisfied all the requirements for the bachelor's degree at The University of Iowa or any other accredited college may be given provisional admission.

E. CANDIDACY

Admission to the Graduate College is not the equivalent of acceptance as a candidate for an advanced degree, which must be earned through work successfully completed at The University of Iowa. (See “Section X. Master's Degrees” and “Section XII. Doctor's Degrees.”)

F. DECLARATION OF MAJOR AND DEGREE

Every applicant for admission must indicate on the application form the department or program of major interest and the degree, certificate, or professional objective he or she intends to pursue. The only exceptions to this regulation are the limited number of applicants registered as nondegree ("special") students. (See definition of nondegree status in next section.) 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. ADMISSION REQUIREMENTS AND STATUS

Graduates of any college or university accredited by regional accrediting associations may be admitted to the Graduate College if their academic records meet the required standards. Upon admission, all students fall into one of the following three categories:

1. Regular—For 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, the minimum g.p.a. for admission as a regular student to all graduate programs is 3.00.

   Departments or programs may petition the Graduate College dean for admission of a student whose g.p.a. is lower than 3.00, if there is sufficient evidence of the student's academic and/or professional achievement indicating his/her potential for success in a graduate program. Departments, or committees in charge of interdepartmental degree programs, may, and often do, set higher minimum admission requirements than those set forth above for the Graduate College as a whole. Information concerning departmental or program requirements may be obtained directly from the executive of the department concerned.

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. The student on conditional status must achieve regular status within two sessions of registration in the Graduate College by attaining a g.p.a. of at least 3.00 and acceptance by the major department, or be dismissed.

3. Nondegree (Special)—Students with a valid bachelor's degree and at least a 2.50 g.p.a. who wish to register for a total of no more than two courses. These students, relatively few in number, must obtain special permission to register from the director of Admissions. Nondegree graduate students are not eligible for a graduate degree.

H. ADMISSION OF FACULTY MEMBERS TO GRADUATE STUDY

Persons who hold faculty rank of assistant professor (including clinical assistant professor) or above at The University of Iowa may be admitted as nondegree students. (See “Section G” above.) A person holding faculty rank as specified above may petition the Graduate College dean for permission to enter a departmental program for work leading to an advanced degree, certificate, or professional improvement except in the department of his or her appointment or a closely related department. Such petitions must have prior approval of the department of appointment, dean of the college of appointment, the department in which study is to be pursued, and the Graduate Council.

I. READMISSION

Students who are admitted to and enroll in the Graduate College, but who then fail to register for a period of 36 months or more, must apply for readmission. Their acceptance is dependent upon departmental approval for the session in which readmission is desired. Consideration of the application for readmission will be governed by the departmental and Graduate College admissions standards in effect at the time of reapplication.

Section II. Registration

A. STANDARD SCHEDULE

Students registered in the Graduate College may register for no more than 15 s.h. in all courses eligible for graduate credit (100-level and above). In a schedule of mixed graduate and undergraduate courses, two hours of undergraduate credit may be substituted for 1 s.h. of graduate credit, with registration limited to a total of 18 s.h. This equivalency applies to the calculation of academic load only. Graduate credit is not given for courses numbered under 100. The maximum for the eight-week summer session is 8 s.h. Corresponding maximums for the three-week summer and winter sessions and the six-week summer session are 3 or 6 s.h., respectively.

The maximum semester-hour registration for work scheduled outside of the regular eight-week summer session will be arranged on a basis proportionate to that stated above with the approval of the Graduate College dean. In the regular semester, 9 s.h. constitutes full-time registration. (Fellows are required to carry at least 9 s.h. during a semester as a condition of their appointments. One-quarter-time and one-third-time appointees are permitted to register for the maximum 15 s.h. per semester and 8 s.h. during the eight-week summer session.

B. COURSES NOT INCLUDED IN FULL REGISTRATION

In addition to a full schedule, a graduate student may register for offered courses carrying 0 s.h. of credit.

C. CHANGES IN ANNOUNCED CREDIT

Graduate students may not register for more credit than that offered for any course, but may register for less credit, or no credit, by permission of the instructor. The number of courses a graduate student may take for limited or no credit is subject to the consent of the adviser and the approval of the dean of the Graduate College.

D. REDUCED SCHEDULES FOR TEACHING AND RESEARCH ASSISTANTS AND OTHER APPOINTEES

1. One-half-time appointees may register for not more than 12 s.h. during a semester or 6 s.h. during the eight-week summer session.

2. Five-eighths-time appointees may register for not more than 10 s.h. during a semester or 5 s.h. during the eight-week summer session.

3. Two-thirds- and three-quarter-time appointees may register for not more than 9 s.h. during a semester or 5 s.h. during the eight-week summer session.

4. Seven-eighths-time appointees may register for not more than 7 s.h. during a semester or 4 s.h. during the eight-week summer session.

5. Full-time appointees, including full-time instructors, may register for not more than 6 s.h. during a semester or 3 s.h. during the eight-week summer session.

E. RETROACTIVE REGISTRATION

No form of retroactive registration is permitted.

F. REGISTRATION FOR PART OF A SESSION

A graduate student may register at any time during the semester or the eight-week summer session for not more than 1 s.h. 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 s.h. permitted for a semester and the 8 s.h. permitted for the eight-week summer session. Registration after the last day of the second week of a semester or the third day of the second week of a summer session is permitted only in courses involving special projects, readings, individual study, thesis, or research, with the signed approval of the instructor concerned and the Graduate College dean. Proportional credit limitations and
deadlines for the three-week and six-week summer sessions will be established on a prorated basis.

G. EXTRAMURAL REGISTRATION

After admission to a departmental program in the Graduate College, registration for work done off campus may be accepted for residence credit under the following circumstances:

1. Traveling Scholar Program of the Committee on Institutional Cooperation (see “Section III”).
2. Research at approved locations under the direction of members of the graduate faculty of The University of Iowa.
3. Fieldwork as part of a regularly scheduled course or research program.
4. Courses taught off campus by members of the graduate faculty (see “Section X.D” and “Section XII.C” for minimum semester hours required on campus for the master's and doctor's degrees).
5. Residence graduate credit from another Iowa Regents’ university (see “Section V.B”).
6. As many as 9 s.h. of graduate work taken at the Quad-Cities Graduate Center from faculty other than faculty of the Iowa Regents' universities, provided the work is acceptable to the student's major department for the specified degree.

Extramural registration does not count toward residence credit in the following circumstances:

1. Course work transferred from another institution.
2. Guided Independent Study courses.

H. GUIDED INDEPENDENT STUDY (GIS) COURSES

Guided Independent Study (GIS) credits do not count as residence credits. Not more than 9 s.h. of graduate GIS work can be applied toward an advanced degree. Such credit must be acceptable for the student’s plan of study and must be earned after the student has enrolled in the Graduate College. In some instances, graduate-level GIS credit earned after a student has received a bachelor's degree but before enrolling in the Graduate College may later be counted toward an advanced degree with approval of the Graduate College dean upon recommendation of the major department. A graduate student may not register for GIS courses without the approval of the executive of his or her major department.

I. 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. A student must be enrolled in the Graduate College in order to earn graduate credit for course work numbered 100 or above. Courses below 100 are not accepted for graduate credit irrespective of a student’s classification. Graduate credit may not be earned for taking courses numbered below 100 by registering in such courses as readings, special projects, or independent study having course numbers of 100 or above.

J. AUDITING OF COURSES

Upon approval of the instructor and the adviser, graduate students may audit courses for zero credit. Fee assessment for auditing courses is based on the number of hours for which the course is offered, with a minimum of 1 s.h. Auditing is permitted only for a student who is currently registered. See “Section VI.C” for the marking system.

K. DROPPING OF COURSES

All graduate students who drop courses after the deadline date established by the dean of the Graduate College for each session and published by the registrar shall receive the grade of F unless the entire registration is withdrawn. This regulation may be waived by the Graduate College dean only on the recommendation of the Student Health director or the Counseling Service. If a student withdraws registration after the deadline date, the student must obtain permission from the dean of the Graduate College before being permitted to reregister.

Section III. Traveling Scholar Program

A. PURPOSE

The program, under the auspices of the Committee on Institutional Cooperation representing 13 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 special resources available on another campus.

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. 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 DISSEMINATION OF INFORMATION

In addition to the above University-wide requirements, departments may establish further requirements which then determine the individual student’s standing with regard to probation and dismissal. To this end, each department or program shall compile a written list of standards and procedures for work in that area. These documents shall be on file in each departmental office and the office of the Graduate College dean. Copies are to be available for students in the departmental office, and departments shall make all reasonable efforts to inform students. Subsequent changes in standards or procedures shall be communicated by the department to each student and the Graduate College dean. Whenever departments revise standards for a given program, the new regulations will not apply retroactively to the disadvantage of those already in the program. In addition to notifying students that they are subject to the rules of the Graduate College as set forth in the Manual of Rules and Regulations, any standards established by the department more stringent than the general Graduate College requirements shall be stated. Information shall be provided outlining required courses applicable to the various departmental programs of study, examination procedures and other formal evaluations, departmental policies with regard to awarding and renewing assistantships, time limits on programs of study, departmental registration policies, departmental grade-point requirements,
requirements for changing from one degree program to another within the department—especially from the master’s to the doctor’s—departmental probation and dismissal policies and procedures (see “E” following), and other matters as are appropriate. The nature of the departmental advisory system shall be explained to incoming students.

E. ACADEMIC PROGRESS, DEPARTMENTAL PROBATION, AND DISMISSAL PROCEDURES

If a student is failing to meet departmental standards, the department shall warn the student of this fact in writing. The notification shall specify in what way(s) the student is failing to meet the standards. The student shall be given a reasonable amount of time to meet the standards prior to departmental dismissal. If conditions such as conditional admission or probation are imposed, the department shall give, at the time of its imposition, written explanation of this status and its time limits.

A student who will not be permitted to reregister for failure to meet standards shall be notified of this fact in writing with reasons for the action provided. Such dismissal may fail to meet conditions of admission, conditions of probation, pre-announced departmental grade-point requirements or other standards, or failure of a regularly scheduled examination or formal evaluation. If a student judges the dismissal decision improper, the student has a right to review. Each department shall establish procedures for handling such reviews. The procedures are to be approved by the Graduate College dean and shall afford a fair and expeditious review. A description of these procedures shall be included in the departmental regulations described above. (See “Section IV.D.”)

F. GRADUATE COLLEGE REVIEW OF DEPARTMENTAL DISMISSAL

Questions involving judgment of performance will not be reviewed beyond the department level. If, however, the student feels there has been unfairness or some procedural irregularity concerning dismissal, the student may pursue a grievance according to the Academic Grievance Procedure (AGP) established by the Graduate College. The AGP is available in the Graduate College. The student should consult with the Graduate College prior to initiating an academic grievance.

Section V. Credits

A. TRANSFER OF GRADUATE CREDIT

Graduate work at other institutions will be entered on the student’s permanent record by the Office of Admissions and a report of this action will be sent to the student and to his or her major department. Credit for these courses toward an advanced degree at Iowa must have the approval of the major department and the dean of the Graduate College. (See “Section X.E.” and “Section XII.E.”, Reduction of Old Credits.)

B. RESIDENCE TRANSFER CREDIT

After admission to a departmental program in the Graduate College, residence graduate credit from another Iowa Regents’ university may be counted as residence credit at this institution, provided such work is acceptable to the student’s major department on the basis of the department’s determination of its applicability toward the degree. (See “Sections X.D.” and “XII.C.” for minimum semester hours required on campus for the master’s and doctor’s degrees, and “Sections X.E. and XII.E.”, Reduction of Old Credits.)

C. GRADUATE CREDIT FOR VETERANS

Credit may be granted for studies pursued in war and military situations under such regulations as may be formulated by the national educational agencies and under such adaptation of standing rules as the Graduate Council may authorize from time to time to meet group or individual situations. The value of such credit in satisfying requirements for a degree will be determined by the major department with the approval of the dean.

D. WITHDRAWAL OF REGISTRATION AND PROPORTIONAL CREDIT FOR STUDENTS ENTERING MILITARY SERVICE

1. Students who leave within the first six weeks of the semester receive no credit.
2. Students who leave within the period of seven to nine weeks receive one-half credit.
3. Students who leave within the period of ten to 12 weeks receive two-thirds credit.
4. Grade reports for the one-half and two-thirds credit periods: (a) Instructors report grades only as satisfactory or unsatisfactory. (b) Credit is to be assigned on the basis of total registration minus thesis and seminar. (c) Courses are to be counted toward specific degree requirements only after the student returns and then only with the department’s approval.
5. Students who complete the twelfth week receive full credit.
6. Grade reports for the full-credit period: (a) Grades are to be reported only at the end of the semester. (b) Credit is to be reported in specific courses.
7. In each instance, the instructor reports the student’s credit, grade, and date of withdrawal. No credit is granted unless the student’s work is satisfactory at the time of leaving.
8. The amount of credit in thesis and research registration is to be reported to the registrar by individual instructors on the above basis except that less or zero credit may be assigned.

Section VI. Marking System

A. MARKS CARRYING GRADUATE CREDIT


B. MARKS CARRYING NO GRADUATE CREDIT

These are D+, D, D-, F, I—incomplete; W—withdrawn without discredit, R—registered, and U—unsatisfactory.

C. AUDIT

R is assigned when a student registered for zero credit attends as an auditor throughout the course; if the student fails to meet the instructor’s requirements for class attendance, W is assigned.

D. INCOMPLETE

The grade of I is to be used only when a student’s work during a session cannot be completed because of illness, accident, or other circumstances beyond the student’s control. In registrations for thesis, research, or independent study, the satisfactory/unsatisfactory grades may be applied. (See next paragraph, “E.”) Students who receive the mark of I must remove that mark within the first session of registration after the closing date of the session for which it is given, or else the grade becomes F, except that students with I’s from the spring semester are exempt from completing the course during the succeeding summer session.

Specific deadlines for the submission of student work to the faculty and for the faculty’s report on I grades to the registrar will be set by the Graduate College dean for each session and printed in the academic calendar. Courses may not be repeated to remove incompletes; removal of an I is accomplished only through completion of the specific work for which the mark is given.

E. THESIS, RESEARCH, READINGS, INDEPENDENT STUDY, AND SPECIAL PROJECTS

Grades of S and U may be used for registrations in thesis, research, readings, independent study, and special projects. S—satisfactory means that the student receives credit for the work; U—unsatisfactory means that he or she receives no credit. Neither S nor U is used in computing grade-point averages. At a later date, the instructor may change the S to a letter grade. In addition, departments may ask the Graduate College dean for permission to use grades of S and U as described above for courses which, because of their special or experimental nature, are judged to be more appropriate for such grading. The type of grading system to be used in the above cases should always be mutually understood by the instructor and student.

F. GRADES OF S AND U

S and U may be used for courses taken by a graduate student outside the major department or interdepartmental degree program provided that the instructor of the course and the student’s departmental adviser approve the registration. Arrangements for satisfactory/unsatisfactory grading in these courses are accomplished by filing a card with appropriate signatures in the Registrar’s Office at the time of registration, or no later than the last day of the second week of a semester or the third day of the second week of a summer session. No changes from letter grades to satisfactory/unsatisfactory grades or vice versa will be allowed after these dates.

It is not the policy of the Graduate College to abandon the traditional letter grades described in this section; however, in certain exceptional instances, departments having several areas of concentration involving widely differing types of effort may request the permission of the Graduate Council to allow students majoring in one area to register in courses in another area within the same department or program on a satisfactory/unsatisfactory basis. In these instances, satisfactory/unsatisfactory cards will be used as described in the preceding paragraph.
G. COMPUTED GRADE-POINT AVERAGE
This is based only upon graduate work graded A+=4.33, A=4.00, A-=3.67, B+=3.33, B=3.00, B-=2.67, C+=2.33, C=2.00, C-=1.67, D+=1.33, D=1.00, D-=0.67, and F=0. Although a grade of A+ has a value of 4.33 in computing a student's g.p.a., the cumulative average is truncated so as not to exceed 4.00.

Section VII. Graduate Appointments
A. SCHOLARSHIPS
Scholarships are competitive and are awarded on merit.
1. Eligibility for graduate scholarships and fellowships will include: (a) registration in the Graduate College; (b) cumulative g.p.a. of at least 3.00; (c) a GRE score or a GMAT score above a point to be designated by the Graduate College dean; (d) a satisfactory rate of progress in completing the program for the degree.
2. Preference will be given to candidates for the doctoral degree.
3. Recommendations for graduate scholarships may be made to the Graduate College by the appropriate department executive, director, or dean. A graduate scholarship may be awarded whether or not a student holds an assistantship. The amount of scholarship for the academic year may vary, but in no case exceed the comprehensive fee assessed. Scholarships will be credited to the student's University account.

B. GRADUATE COLLEGE FELLOWSHIPS
Fellowships are awarded by the Graduate College upon recommendation by departments to students with outstanding academic records. Fellows must be registered as full-time students. The primary purpose of the awards is to permit advanced study to complete his or her dissertation or creative project and take the degree. Other terms of the award will be established by the Graduate College dean in consultation with the Graduate Council.

C. FACULTY RESEARCH ASSISTANTSHIPS
Faculty research assistantships are awarded to qualified graduate students and serve two purposes: to provide research service to professional members of the academic staff and to provide apprenticeship experience for graduate students who are in training in research. Not more than 20 hours of service per week are required of a half-time assistant. Other part-time service is scaled in proportion, and a limited academic schedule is permitted (see "Section II.D."). Appointments ordinarily are made for the nine-month academic year, but appointments may be made for other periods of time by special arrangement. Stipends vary with the qualifications of the appointee and the amount of service rendered. Graduate appointments beginning in August are usually made by the Graduate College dean upon recommendation of the various departments in March of each year, although applications may be considered at any time. Application should be made on the form provided by the Graduate College and should be accompanied by recommendations and/or a letter summarizing the student's qualifications.

D. GRADUATE TEACHING ASSISTANTSHIPS
These assistantships serve two purposes: assistance in the instructional program of the University and the preparation of future college teachers. In order to achieve both aims, scholastically superior graduate students who show exceptional promise as teachers are selected for graduate teaching assistantships. All appointments are made by the dean of the appropriate college on recommendation of the department.

E. ELIGIBILITY FOR SCHOLARSHIPS, FELLOWSHIPS, AND RESEARCH ASSISTANTSHIPS
Scholars, fellows, and faculty research assistants must be registered as regular students in good standing in order to hold such appointments. Appointments will be terminated when registration and/or student status is terminated. In no instance may a student be promised or tendered an appointment until after approval for admission to the Graduate College by the director of Admissions.

F. CREDIT
No academic credit is allowed for the teaching or research service for which the student receives payment as a graduate assistant.

G. LOANS
Graduate students requiring financial assistance may apply for loans at the Office of Student Financial Aid. See "Financial Aid" in the Learning at Iowa section of the Catalog.

H. OTHER FORMS OF SUPPORT
Many departments offer financial assistance in the form of traineeships, part-time employment on research programs, or part-time teaching. Inquiries should be addressed directly to the major department.

Section VIII. Advanced Programs Offered in the Graduate College
The major areas in which the Graduate College offers degree programs are listed under "Degree Programs" at the beginning of this section of the Catalog.

Section IX. General Requirements for Advanced Degrees
A. APPLICATION FOR DEGREE
The student must file an application for an anticipated degree with the registrar not later than 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 adviser. Failure to file the application by the deadline date established by the Graduate College dean will result in postponement of graduation to a subsequent session.

B. ENROLLMENT IN FINAL SESSION
The student must be enrolled during the session in which the degree is to be conferred. Students who are away from the University campus during that session may meet this requirement by registering for independent study, research, or thesis hours according to the practice in the various departments. Doctoral candidates who have completed all work except the final examination may register for Doctoral Final Registration described in "Section XII." If such registration is appropriate, Master's candidates who have completed all work except the final examination may register for Master's Final Registration if such registration is appropriate. Both the Doctoral Final Registration and Master's Final Registration require a 2 s.h. tuition/fee payment, and may be repeated if the degree requirements are not completed in this session. Registration in a Guided Independent Study course or in a course for which tuition/fees are not assessed (Cooperative Education Internship, for example) will not satisfy this requirement.

Section X. Master's Degrees
A. KINDS OF DEGREES
The University of Iowa offers programs leading to the Master of Arts (M.A.) degree, Master of Science (M.S.) degree, and several professional master's degrees. M.A. and M.S. degrees require mastery of methodologies and practices of research and scholarship of the discipline. A thesis describing original scholarship or research may be required. M.A./M.S. degrees may be designed either as preparation for entry into doctoral degree programs or to provide advanced study and accomplishment that serves a variety of career and other purposes. Degrees are awarded in many fields of study, or majors, consistent with conventions of the discipline (e.g., M.A. in Art, English, Psychology; M.S. in Chemistry, Mathematics, Physics). (For complete list, see Section VIII.) M.A. and M.S. degrees require a minimum of 30 s.h., a final examination and, in some fields, a thesis. Professional master's degrees provide knowledge, perspectives, and skills required for professional practice. Some programs may include introduction to research or scholarship sufficient to allow application of current literature to practice. Professional master's degrees generally are indicated by a three- or four-letter designation; examples include the Master of Fine Arts (M.F.A.), Master of Social Work (M.S.W.), Master of Public Health (M.P.H.), Master of Physician Assistant Studies (M.P.A.), Master of Science in Nursing (M.S.N.), Master of Accountancy (M.A.C.). (For complete list, see Section VIII.) Professional master's degrees require a minimum of 30 s.h. Some may require a final examination as well as a thesis, papers, projects, colloquia, internships, or other experiential-based activity typical of preparation for practice in the field.

A student may prepare a proposal for an interdisciplinary course of study, including the plan of study defining course work, examination requirements, a research plan, and a committee of at least three faculty members, with either the department most directly concerned or the Graduate College designated as the sponsor. Final approval of such individual programs is granted by the Graduate College dean, who may add members to the student's supervising committee from other closely related departmental faculties or from the Graduate Council. The degree will be awarded in interdisciplinary studies (master's)
stipulated in the approved graduate program and, parenthetically, the name of the sponsoring department or degree description.

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 the deadline date printed in the Graduate College academic calendar. If the session in which a student takes his or her final exam is earlier than the session in which the degree is to be granted, the Plan of Study must be filed prior to the administration of the student’s final examination. The plan shall meet the requirements for the degree approved by the graduate faculty. (See also “Section IV.D. Departmental Regulations and Dissemination of Information.”)

C. MAJOR AND RELATED FIELDS
The plan of study should provide for reasonable concentration in the major field of interest and, subject to the approval of the major department, may include related subjects from other departments.

D. ACADEMIC RESIDENCE REQUIREMENT
Of the minimum of 30 s.h. required for the degree, at least 24 s.h. must be completed under the auspices of The University of Iowa after admission to a graduate department/program. Various forms of extramural registration may qualify toward fulfillment of the aforementioned 24-hour residence requirement (see “Section II.G. Extramural Registration”) in addition to regular on-campus registration. Students who have elected or who are required to write a thesis for conferment of their master’s degrees, must complete at least 8 semester hours of the 24-hour academic residence requirement on campus. At the discretion of the department, the 8-semester hour, on-campus requirement may be waived for non-thesis master’s programs. Election of the waiver option is to be applied programmatically, and not on a student-by-student basis, and must be formally conveyed to the Graduate College.

E. REDUCTION OF OLD CREDITS
Credits for a master's degree dating back more than 10 years from the session in which the degree is to be conferred are not counted toward fulfillment of degree requirements. This rule may be waived by the dean in cases affected by military service.

F. LIMIT ON PROFESSIONAL COURSES
Work taken by a student in the Colleges of Dentistry, Law, or Medicine while enrolled for a professional degree may be credited to a graduate program leading to a master's degree if it is taken after the student has earned a bachelor's degree or has completed work equivalent to that required for a bachelor's degree at The University of Iowa. The work accepted from the professional college must be directly related to the student's major field of study in the Graduate College and be approved as a part of the plan of study by the student’s adviser and the major department. Work completed while registered for a professional degree in law, medicine, or dentistry will be counted as part of the residence requirement for nondoctoral degrees in the Graduate College only when the student is registered in an appropriate joint degree program.

G. TWO MASTER’S DEGREES
The granting by this university of two master’s degrees simultaneously or in succession requires the satisfaction of all requirements for each degree separately, including two theses where a thesis is required for each, and two examinations, with a minimum combined total of 60 s.h. of graduate credit.

H. MASTER’S DEGREE WITH THESIS
Not more than 9 s.h. of credit for thesis research and writing shall be counted in satisfying the 30 s.h. minimum requirement. The thesis may be a scholarly study or an artistic production.

One copy of the thesis, complete and in final typed form, must be presented to the Graduate College for a check of formal characteristics not later than four weeks before the graduation date on which the degree is to be conferred. (See the Graduate College Thesis Manual.) After approval by the Graduate College and by the thesis committee, two copies of the thesis must be deposited with the Graduate College not later than 10 days before graduation. Failure to submit the first and final deposits of the thesis by the deadline dates established by the Graduate College will result in the postponement of graduation to a future session.

If the thesis is in some nonprint form (e.g., painting, statue, performance in music) the librarian will help the student and faculty adviser work out an appropriate method of preparing the work, if such help is needed. Once the accompanying manuscript is accepted, it is treated the same as any other thesis.

Nonrefundable fees are charged each thesis candidate to cover processing and publication costs of the thesis.

The thesis committee shall consist of at least three members of the graduate faculty and may or may not be identical to the final examination committee. (See “X. X. Examining Committee.”)

I. MASTER’S DEGREE WITHOUT THESIS
A master's degree without thesis, consisting of at least 30 s.h. of graduate work, 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 master's degrees may include a final examination which, at the discretion of the major department, may be written or oral or both. Such an examination will not duplicate course examinations. It will be evaluated by the examining committee as satisfactory or unsatisfactory, with two unsatisfactory votes making the committee report unsatisfactory. The report of the final examination is due in the Graduate College not later than 48 hours after the examination.

If the department so recommends, a candidate who fails the examination may present himself or herself for reexamination, but not sooner than the next regularly scheduled examination period in the following session.

The examination may be repeated only once.

A student must graduate within one calendar year after passing the final examination for a master's degree; failure to meet this deadline will require reexamination of the student.

Upon recommendation of a department, the comprehensive examination for a doctoral degree may be substituted for the master's examination.

Some master's programs do not require a final exam. Students are responsible for checking the specific requirements of their individual degree programs.

K. EXAMINING COMMITTEE
The examining committee for the master's degree consists of at least three members of the graduate faculty, appointed by the Graduate College dean upon recommendation of the major department or program, at least two of whom are from the major department. If the examination covers work in another department, one member of the committee must be from that department. Upon recommendation of the major department, the dean may appoint additional qualified persons (not necessarily members of the graduate faculty) to serve as voting members of the examining committee, and, at his or her discretion, the Graduate College dean may add a member to the committee.

Section XI. Graduate Certificate Programs
Graduate certificate programs reflect specialization, either within a field or in an area of study, research, or training. Some graduate certificate programs may be open only to students seeking degrees in related fields; others may be offered as independent programs.

Graduate certificate programs are designed to enhance skills, to provide professional development and career advancement opportunities, to broaden career options, and for other purposes, both for traditional, full-time students and for those with full-time employment.

Graduate certificate programs usually require a minimum of 15 s.h. of specified course work and may, in addition, require papers, projects, or experiential learning components designed for specific cohorts. Certificate programs generally require two to three semesters to complete.

Examples include the graduate certificates in aging studies, American Indian and native studies, health informatics, and advanced nurse practitioner. Requirements for each graduate certificate are included in The University of Iowa General Catalog.

Section XII. Doctor’s Degrees
A. CHARACTER OF DEGREE
The Graduate College offers doctoral programs leading to the Doctor of Philosophy (Ph.D.), the highest degree awarded by the university; the Doctor of Musical Arts (D.M.A.); the professional Doctor of Physical Therapy (D.P.T.) and the
professional Doctor of Audiology (Au.D.). The Doctor of Philosophy degree indicates marked excellence in original research or other creative work, and superior comprehension in the discipline. The Doctor of Musical Arts degree indicates marked excellence in performance and pedagogy. The Doctor of Physical Therapy degree indicates marked excellence in physical therapy differential diagnosis and clinical integration. The Doctor of Audiology degree indicates marked excellence in theoretical and advanced clinical skills.

B. PREREQUISITES
The candidate must present evidence of having completed a satisfactory amount of undergraduate work in the subject proposed for investigation or, in the case of deficiency, must register for prerequisite courses.

C. RESIDENCE REQUIREMENT
The doctorate is granted primarily on the basis of achievement rather than on the accumulation of semester hours of credit; however, the candidate is expected to have completed at least three years of residence in a graduate college. At least part of this residence must be spent in full-time involvement in one’s discipline, at this university, beyond the first 24 s.h. of graduate work; this requirement can be met either by: (1) enrollment as a full-time student (9 s.h. minimum) in each of two semesters; or (2) enrollment for a minimum of 6 s.h. 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 s.h. of graduate work.)

D. INTERDISCIPLINARY STUDIES PROGRAMS
A student may prepare a proposal for an interdisciplinary course of study, including the plan of study defining course work, examination requirements, research plan, and a committee of at least five faculty members with either the department most directly concerned or the Graduate College, designated as the sponsor. Final approval of such individual programs is granted by the Graduate College dean, who may add members to the student’s supervising committee from other closely related departmental faculties or from the Graduate Council. The degree will be awarded in interdisciplinary studies (doctorate) stipulated in the approved graduate program and, parenthetically, the name of the sponsoring department or degree description.

E. REDUCTION OF OLD CREDITS
Courses taken 10 or more years prior to the comprehensive examination will be evaluated by the major department in order to determine the amount of credit that shall be allowed for such work. Evaluation of such old credits will be reported to the Graduate College by the departmental executive at the time of submission of the plan of study.

F. LIMIT ON PROFESSIONAL COURSES
Work taken by a student in the Colleges of Dentistry, Law, or Medicine while enrolled for a professional degree may be credited to a graduate program leading to a doctoral degree if it is taken after the student has earned a bachelor’s degree or has completed work equivalent to that required for a bachelor’s degree at The University of Iowa. The work accepted from the professional colleges must be directly related to the student’s major field of study in the Graduate College, and the plan of study must be approved by the student’s adviser and the major department. Work completed while registered for a professional degree in law, medicine, or dentistry will not be counted as part of the one academic year which must be spent in residence as a doctoral student on the campus of this university.

G. JOINT PROGRAM FOR MASTER’S AND DOCTORAL DEGREES
Those students who expect to continue their training through the doctoral degree may file a joint program for the master’s and doctor’s degrees. The master’s examination may be combined with the comprehensive examination for the doctorate for these candidates. The examining committee will file separate reports of its actions on the final examination for the master’s degree and for the comprehensive examination. Upon recommendation of the department and approval of the Graduate College dean, students who are well qualified by previous training may submit a plan of study that leads directly to the doctoral degree without earning the master’s degree as an intervening part.

H. REQUIREMENT IN FOREIGN LANGUAGES
There is no general Graduate College requirement in foreign languages. Those departments that do require competence in one or more foreign languages establish standards as to the extent and level of competence, as well as methods of testing. Specific requirements will be found in the departmental statements of standards and procedures (see “Section IV.D.”). Specifications of departmental requirements in foreign languages are filed in the Graduate College office and may be changed upon the initiative of the departments.

I. REQUIREMENTS FOR THE DOCTOR OF PHYSICAL THERAPY (D.P.T.) AND DOCTOR OF AUDIOLOGY (A.U.D.)
Students enrolled in professional D.P.T. and Au.D. programs do not take comprehensive and final examinations and do not deposit a thesis with the Graduate College. The departments will be required to submit a doctoral plan of study to the Graduate College during the session of degree conferment. The plan will provide a listing of all graduate work the student must apply toward the degree and a listing of courses in progress. The plan is to be filed no later than the deadline date printed in the Graduate College academic calendar.

J. PLAN OF STUDY
The development of a plan of study at the doctoral level is the responsibility of the student working together with his or her adviser. A formal plan of study must accompany the departmental request to the Graduate College for permission to conduct the comprehensive examination. The plan will provide a listing of all graduate courses taken that apply toward the degree and a listing of courses to be completed after the comprehensive examination.

K. COMPREHENSIVE EXAMINATION
The candidate must satisfactorily complete a comprehensive examination, consisting of written or oral parts or both at the discretion of the major department. Admission to the comprehensive examination is granted upon the recommendation of the major department, the filing of the plan of study, and the approval of the dean of the Graduate College. A student must be registered in the Graduate College at the time of the comprehensive examination, which must be satisfactorily completed not later than the session prior to the session of graduation. This examination, administered only on campus, is intended to be an inclusive evaluation of the candidate’s mastery of the major and related fields of study, including the tools of research in which competence has been certified.

The comprehensive examination is not a deferred qualifying examination. It is intended to evaluate the candidate’s mastery of the subject at or near the end of his or her formal preparation and prior to the completion of the dissertation. The comprehensive examination and the final examination, which is concerned chiefly with defense of the thesis and related subjects, are the two principal examinations for the Ph.D. and D.M.A. doctoral degrees. The comprehensive examination will be evaluated by a convened meeting of the committee and reported as satisfactory, reservations, or unsatisfactory to the Graduate College office within 14 days after the completion of the examination. Two "unsatisfactory" votes will make the committee report unsatisfactory.

A vote of “reservations” should only be used when a faculty member feels that the deficiencies displayed by the student were modest, and can be readily rectified. In the event of a report with two or more votes of “reservations,” the actions required of the student, by the committee, that are necessary to correct the deficiencies must be recorded and submitted to the Graduate College with the examination report form. Copies of the written statement of necessary actions should be kept by: the appropriate departmental executive, the chair of the examination committee, and the student. The statement must specify the time allowed for completion of the aforementioned actions. The language describing the actions must be specific. For instance, if additional course work is required, a list of suitable courses must be presented. If the candidate needs to rewrite his or her research prospectus, the deficient areas must be identified, etc. If the candidate satisfies the required actions in the specified period of time, the appropriate departmental executive will send a written report to the Graduate College indicating the date for which the examining committee considers the actions to have been satisfied. Upon approval of the dean of the Graduate College, the comprehensive exam will be recorded as “satisfactory” as of that date. If the actions are not satisfied on time, or if the actions are not of sufficient quality, the appropriate
departmental executive will send a written report to the Graduate College indicating that fact. Upon approval of the dean of the Graduate College, the comprehensive exam will be recorded as "unsatisfactory" as of that date. The candidate will not be admitted to the final oral examination of the dissertation until a grade of "satisfactory" has been recorded for the comprehensive exam.

In case of a report of unsatisfactory on a comprehensive examination, the committee may grant the candidate permission to present himself or herself for reexamination not sooner than four months after the first examination. The examination may be repeated only once, at the option of the department.

L. CONTINUOUS REGISTRATION AFTER COMPLETION OF THE COMPREHENSIVE EXAMINATION

The student is required to register each fall and spring semester after satisfactorily completing the comprehensive examination until the degree is awarded. If a student fails to register, the student may not be readmitted to candidacy until the student has submitted an application that has been approved by the student's adviser, the departmental executive, and the Graduate College dean.

In order to maintain continuous registration, doctoral students may register (1) for required and/or elective courses, research, and thesis work to complete the plan of study, or (2) for Doctoral Continuous Registration (DCR). DCR requires a 2 s.h. tuition/fee payment. If a temporary lapse in a student's academic program is required due to military service, medical leave, maternity leave, or personal/family leave, a student may petition the Graduate College to be allowed to register for Ph.D. Postcomprehensive Registration (PCR), which allows for the assessment of a special minimum fee. If a petition is granted, it is to be understood that a student will not make significant use of university resources, or engage in significant consultation with the faculty. The Ph.D. Postcomprehensive Registration is not to be used for a student's final registration in a doctoral program. In the fall semester, doctoral students may register for Doctoral Final Registration (DFR), which requires a 2 s.h. tuition/fee payment, or appropriate course work. The DFR may be repeated if the degree requirements are not completed in this session.

Under no circumstances may courses for which tuition/fees are not assessed (Cooperative Education Internship, for example) be used to satisfy the continuous registration or final registration requirement of the Graduate College.

No registration for the summer or winter sessions is required. The exceptions are when the student is taking a degree at the end of the summer session, or when enrollment is required by the student's department.

M. DISSERTATION FOR THE DOCTORAL DEGREE

One copy of the dissertation, complete and in final form, must be presented at the office of the Graduate College not later than four weeks before the graduation date on which the degree is to be conferred.

Two copies of the approved dissertation must be deposited at the office at least 10 days prior to the graduation date. The final deposit can be no later than the end of the semester (summers excluded) following the session in which the final examination is passed; failure to meet this deadline will require reexamination of the student. Failure to submit the first and final deposits of the thesis by the deadline dates established by the Graduate College will result in the postponement of graduation to a future session.

Regulations regarding preparation of the dissertation copy shall be promulgated by the dean of the Graduate College. Dissertations will be microfilmed and thus made available on a permanent basis. An abstract of the dissertation, not to exceed 350 words of text, is to be deposited with the dissertation. The abstract must be approved and signed by the dissertation adviser. The abstract is published in the journal of Dissertation Abstracts International. One copy of the dissertation is bound and indexed at the University's Main Library.

If the dissertation is in some nonprint form (e.g., painting, statue, performance in music) the librarian will help the student and faculty adviser work out an appropriate method of preparing the work, if such help is needed. Once the accompanying manuscript is accepted, it is treated the same as any other thesis.

Dissertations shall be made available to all members of the examining committee not later than two weeks before the date of the examination.

N. DISSERTATION FEES

Nonrefundable fees are charged each doctoral candidate to cover processing and publication costs of the dissertation and abstract.

O. FINAL EXAMINATION

The work for the degree culminates in a final oral examination administered on campus. This examination should include: a critical inquiry into the purposes, methods, and results of the investigation—not a mere recapitulation of the procedures followed—and intensive questioning on areas of knowledge constituting the immediate context of the investigation.

The final examination may not be held until the next session after the student satisfactorily completes the comprehensive examination; however, a student must pass the final examination no later than five years after satisfactorily completing the comprehensive examination. Failure to meet this deadline will result in a reexamination of the student to determine his or her qualifications for taking the final examination. The procedures to be followed are the same as those for the comprehensive examination. (See "XII.K. Comprehensive Examination.")

Final examinations for the doctorate are open to the public. Members of the faculty of the Graduate College are especially invited to attend and, subject to the approval of the chair, to participate in the examination.

The report of the final examination is due in the Graduate College office not later than 48 hours after the examination. The final examination will be evaluated as satisfactory or unsatisfactory. Two unsatisfactory votes will make the committee report unsatisfactory. In case of a report of unsatisfactory in the final examination, the candidate may not present himself or herself for reexamination until the next session. The examination may be repeated only once, at the option of the major department.

P. EXAMINING COMMITTEES

The comprehensive and final examinations are conducted by committees of no fewer than five members of the graduate faculty appointed by the Graduate College dean upon recommendation of the major department, except that departments may request the dean's permission to replace one of the five members of the graduate faculty by a recognized scholar of professorial rank from another academic institution. A member of the graduate faculty from outside the major department is required in those cases where a related field outside the major department is included in the comprehensive examination. For the final examination, one member of the committee must be a member of the graduate faculty from outside the major department.

Upon recommendation of the major department, the Graduate College dean may appoint additional qualified persons (not necessarily members of the graduate faculty) to serve as voting members of the examining committees. A voting member may be added at the discretion of the Graduate College dean.

Section XIII. Exceptions

Petitions to waive these regulations may be made for appropriate and justifiable reasons on behalf of any graduate student through the departmental executive to the dean and the Graduate Council.

Nondepartmental Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>000:000</td>
<td>Ph.D. Postcomprehensive Registration</td>
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</tr>
<tr>
<td>000:001</td>
<td>Master's Final Registration</td>
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<td>Doctoral Continuous Registration</td>
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<td>000:801</td>
<td>Regents Exchange Program</td>
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<td>000:997</td>
<td>Graduate/Professional Transfer</td>
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<td>Undergraduate Transfer</td>
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<td>Resident/Fellow/Post-Doctor</td>
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<tr>
<td>650:006</td>
<td>Summer Research Opportunity Program</td>
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</tr>
<tr>
<td>650:011</td>
<td>CIC Summer Research Opportunities Program</td>
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<tr>
<td>650:270</td>
<td>Responsible Conduct in Research</td>
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<tr>
<td>650:300</td>
<td>Writing for Learned Journals</td>
<td>1-4</td>
</tr>
<tr>
<td>650:313</td>
<td>Digital Rhetorics</td>
<td>3</td>
</tr>
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</table>
and between disciplines; methodological perspectives of participants’ disciplines. Same at 008:313, 100:313.  

650:510 Tests in Rhetorics of Inquiry 2-4 s.h.  
Same as 100:510.  

650:601 Postdoctoral Research Scholar 0 s.h.  
Repeatable. Prerequisite: postdoctoral standing.  

650:602 Postdoctoral Research Fellow 0 s.h.  
Repeatable. Prerequisite: postdoctoral standing.  

650:603 Postdoctoral Clinical Scholar 0 s.h.  
Repeatable. Prerequisite: postdoctoral standing.  

650:604 Responsible Conduct in Research 0 s.h.  
Current topics and ethical issues; misconduct and fraud, proper handling of data, responsible authorship, conflict of interest, research on animals and humans. Repeatable. Prerequisite: postdoctoral standing and consent of course director.  

650:605 Writing for Learned Journals 0 s.h.  
Help for graduate students in bringing written work to publishable form; analysis of target journals’ rhetoric; submission, handling of data, responsible authorship, conflict of interest, response to criticism. Prerequisite: postdoctoral standing.  

650:606 Survival Skills for a Research Career 0 s.h.  
Nonlaboratory skills necessary for pursuing a scientific research career, including scientific writing, presentation, manuscript review, curriculum vitae preparation, and so forth. Repeatable. Prerequisite: postdoctoral standing.  

Doctor of Philosophy  
The Program in Applied Mathematical and Computational Sciences at The University of Iowa is an autonomous, broadly based interdisciplinary program leading to the Doctor of Philosophy degree. The program helps students achieve a command of theoretical and applied mathematics and obtain basic knowledge in another area (engineering, medicine, or one of the behavioral, biological, physical, or social sciences). The program is flexible; students can concentrate on applied mathematics, such as differential equations and numerical analysis, or on other applicable techniques in mathematics. Scientific computing is an important part of applied mathematics today, so it is often a part of student training and dissertation research.  

Applicants should have a desire to apply a mathematical science (mathematics or statistics) to relevant problems in another area. To be prepared for graduate-level course work in both mathematics and the outside area, applicants should have a bachelor’s or master’s degree with a strong mathematics component and some background in the other area.  

PLAN OF STUDY  
Faculty members help each student plan a course of study that is consistent with the student’s background, interests, and goals.  

These individual programs are designed to help students develop expertise in methods of applied mathematics and build a good foundation in related topics of theoretical mathematics. The individual programs also provide sufficient knowledge in the outside area to enable students to use mathematical techniques in that area.  

Students can arrange their study plans to earn a master’s degree from another department after they complete part of their plan. Students find suitable thesis problems and supervisors with the help of the faculty.  

COMPREHENSIVE EXAMINATIONS  
Ph.D. comprehensive examinations cover three areas: theoretical foundations in mathematics, methods of application, and the chosen outside area. One program objective is to have each student’s dissertation research include many of the activities of an applied mathematical scientist. For example, a student might formulate a model, do a quantitative analysis of the model, and interpret the results.  

Admission and Financial Support  
Fellowships and research and teaching assistantships are available to qualified applicants. Fellowship support is available during the summers. Applications for fall semester admission and for financial support should be received by January 15. Information about admission requirements, financial support, graduate study, computing facilities, employment opportunities, recent graduates, and the faculty is available on The University of Iowa’s World Wide Web site. For application forms and more information about the academic program, contact the chair of the Program in Applied Mathematical and Computational Sciences.  

Courses  
22A:397 Seminar: Applied Mathematical and Computational Sciences  
Current research by faculty, students, guests. Prerequisite: consent of instructor.  
22A:399 Reading and Research  
Repeatable. Prerequisite: consent of advisor.  

Biosciences  
Director: Andrew F. Russo  
Affiliated faculty: Paul Abbas (Speech Pathology and Audiology/Otolaryngology—Head and Neck Surgery), Francois Abboud (Internal Medicine), Harald Adams (Neurology), Ralph Adolpho (Neurology), Steven Anderson (Neurology), Nancy Andreaean (Psychiatry), Michael Apicella (Microbiology), Mark Arnold (Chemistry), Nikolai Artemyev (Physiology and Biophysics), Mario Ascoli (Pharmacology), Robert Ashman (Internal Medicine), William Ballard (Biological Sciences), Zuhair Basal (Internal Medicine), Rotondi Bandi (Anatomy and Cell Biology), Gary Baumbach (Pathology), Antoine Bechara (Neurology), Ramesh Bhalla (Anatomy and Cell Biology), Debashish Bhattacharya (Biological Sciences), Jackie Bickenbach (Anatomy and Cell Biology), Caii Bishop (Microbiology), Mark Blumberg (Psychology), Daniel Bonthius (Pediatrics), Timothy Brennan (Anesthesiology), Garry Buettner (Radiation Oncology), John Butler (Microbiology), Kevin Campbell (Physiology and Biophysics), Thomas Casavant (Electrical and Computer Engineering), Martin Cassell (Anatomy and Cell Biology), Mark Czapleau (Internal Medicine), Chi-Lien Chen (Biological Sciences), Steven Clegg (Microbiology), Michael Cohen (Pathology), Robert Cohen (Biochemistry), Kelly James Cole (Exercise Science), Josep Comeron (Biological Sciences), Robert Cornell (Anatomy and Cell Biology), John Cowan (Internal Medicine), Charles Cox (Microbiology), Raymond Crowe (Psychiatry), Michael Dailey (Biological Sciences), Morris Dailey (Pathology), Antonio Danasi (Neurology), Hanna Damasio (Neurology), Lacy Daniels (Microbiology), Warren Darlent (Exercise Science), Beverly Daviton (Internal Medicine), Robin Davison (Anatomy and Cell Biology), Deborah Dawson (Preventive and Community Dentistry), Jeffrey Denburg (Biological Sciences), Robert Deschenes (Biochemistry), Gerald Dibona (Internal Medicine), Frederick Domann (Radiation Oncology), John Donelson (Biochemistry), Martine Dunnwald (Dermatology), Daniel Eberl (Biological Sciences), Adrian Eickore (Biochemistry), John Engelhardt (Anatomy and Cell Biology), Sarah Engelhardt (Physiology and Biophysics), Frank Faraci (Internal Medicine), Jan Fauster (Biological Sciences), Michael Feiss (Microbiology), Robert Felder (Internal Medicine), Elizabeth Field (Internal Medicine), Rory Fisher (Pharmacology), Robert Francis (Anthropology), Joseph Frankel (Biological Sciences), Sonya Franklin (Chemistry), John Freeman (Psychology), Alice Fulton (Biochemistry), Bruce Gantz (Otolaryngology—Head and Neck Surgery), Mitinettia Gardiner (Pharmacology), Gerald Gebhart (Pharmacology), Lei Geng (Chemistry), Pamela Geyer (Biochemistry), James Gierer (Chemistry), Harold Goff (Chemistry), Prabhat Goswami (Radiation Oncology), Thomas Grabowski (Neurology), Steven Green (Biological Sciences), E. Peter Greenberg (Microbiology), Thomas Griffith (Urology), Gary Guzman (Microbiology), Thomas Griffith (Urology), Gary Guzman (Microbiology), Thomas Griffith (Urology), Gary Guzman (Microbiology), Thomas Griffith (Urology), Gary Guzman (Microbiology), Thomas Griffith (Urology), Gary Guzman (Microbiology), Thomas Griffith (Urology), Gary Guzman (Microbiology), Thomas Griffith (Urology), Gary Guzman (Microbiology), Thomas Griffith (Urology), Gary Guzman (Microbiology), Thomas Griffith (Urology), Gary Guzman (Microbiology), Thomas Griffith (Urology), Gary Guzman (Microbiology), Thomas Griffith (Urology), Gary Guzman (Microbiology), Thomas Griffith (Urology), Gary Guzman (Microbiology), Thomas Griffith (Urology), Gary Guzman (Microbiology), Thomas Griffith (Urology), Gary Guzman (Microbiology).
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Subsequent rotations, and the student’s selection of a department or program and lab for thesis research.

In addition to laboratory rotations, all biosciences students take 156:201 Principles in Molecular and Cell Biology, which provides a foundation for understanding basic principles of molecular and cell biology relevant to all biosciences disciplines and teaches students how to evaluate literature critically.

The Biosciences Seminar (156:265) dovetails with current seminar series offered by the Biosciences Program departments and programs. At the beginning of each semester, biosciences students meet to choose approximately 12 seminars that they will all attend. Students choose seminars under advisement from the course instructor, who ensures that all students contribute to the selection process. During the first semester, student groups are formed and each group selects a paper from a chosen speaker to present. During the second semester, individual students select and present a paper.

Overall student progress is monitored by the student’s primary adviser, rotation adviser(s), and program director, who meet at the end of each semester to review student progress. At the end of the second semester, the primary adviser, in cooperation with rotation adviser(s), make a recommendation to the Biosciences Program director whether the student should continue in the Ph.D. program. University guidelines, such as maintaining a cumulative g.p.a. of 3.00 or higher, as well as performance in rotations are considered.

During the second semester, Biosciences Program students meet with prospective mentors regarding thesis proposals and openings available in the mentors’ laboratories. Students identify which program and laboratory they would like to transfer to his or her chosen program. From that point on, the department or program advises the student and evaluates his or her progress. Most participating departments and programs require that students take a comprehensive exam at the end of the second year and no later than the third year. Following successful completion of the exam, students are advanced to Ph.D. candidacy.

REQUIRED COURSES
All Biosciences Program students must complete the following course work. Students earn at least 12 s.h. each semester.

Fall Semester

156:201 Principles in Molecular and Cell Biology 4 s.h.
156:265 Biosciences Seminar 1 s.h.
156:302 Biosciences Research (10-week research rotations) 4 s.h.
One elective
Spring Semester
156:265 Biosciences Seminar  1 s.h.
156:302 Biosciences Research (10-week research rotations)  art.
650:270 Responsible Conduct in Research  1 s.h.
Two electives

Admission
The program accepts students with a variety of backgrounds in the biological and physical sciences. Entering students must hold a baccalaureate degree from an accredited college or university and should have completed courses in biology, chemistry, physics, and calculus consistent with requirements for a baccalaureate degree in the sciences. Applicants should have an undergraduate g.p.a. of at least 3.00. Applicants must submit their scores on the Graduate Record Examination; a combined verbal and quantitative score of 1200 and an analytical writing score of 4.5 or higher are preferred. International applicants whose first language is not English must have Test of English as a Foreign Language (TOEFL) scores higher than 600 on the paper-based exam or 250 on the computer-based exam. Other indicators of academic accomplishments, such as research experience and letters of recommendation, are considered.

Information about graduate training and application materials are available from the Biosciences Program office.

Financial Support
Graduate students receive stipend and tuition support from The University of Iowa and other sources. Students promoted to the second year in the program receive support from their graduate departments and programs. The Biosciences Program also helps some students apply for competitive national awards for outstanding academic and research achievement.

Facilities
The basic science and clinical departments of the Carver College of Medicine are clustered on the west campus of the University, primarily in the Bowen Science Building, Eckstein Medical Research Building, Medical Laboratories, Medical Education and Biomedical Research Facility, and University of Iowa Hospitals and Clinics. Nearby are the Hardin Library for Health Sciences and the Veterans Affairs Medical Center.

The Departments of Anatomy and Cell Biology, Biochemistry, Microbiology, Pharmacology, and Physiology and Biophysics are housed in the Bowen Science Building. Laboratories of clinical departments are located primarily in the Medical Laboratories and the Medical Research Center. The Eckstein Medical Research Building houses major core facilities for microscopy, image analysis, flow cytometry, protein structure, and monoclonal antibody production, as well as research laboratories for basic investigators with interdisciplinary approaches to cancer, molecular biology, genetics, and immunology. The geographic proximity of these facilities promotes interchange among clinical and basic science faculty members and students and maximizes use of the University’s extensive core facilities for biomedical research.

Integral to the University’s research environment are the Alzheimer’s Disease Center, Cancer Center, Cardiovascular Center, Clinical Research Center, Cooperative Human Linkage Center, Craniofacial Anomalies Research Center, Diabetes-Endocrinology Research Center, Digestive Diseases Core Center, Iowa Child Health Research Center, Iowa Cystic Fibrosis Center, Iowa Specialized Center for Pulmonary Research, Lipid Research Center, Mental Health Clinical Research Center, Schizophrenia Research Center, Center for Gene Therapy, and Specialized Centers for Congenital Heart Disease and Hypertension and for Occupational and Immunological Lung Disease.

In addition to the University’s extensive facilities for research support, the Carver College of Medicine and the College of Liberal Arts and Sciences operate a variety of research support facilities. Tissue culture, autoclaving, purified water, darkrooms, counters, and a variety of general-use equipment and services are available on a shared basis.

Courses
156:201 Principles in Molecular and Cell Biology  4 s.h.
Introduction to critical reasoning as applied to fundamental principles of molecular and cell biology; recent scientific literature. Repeatable.

156:205 Biosciences Seminar  1 s.h.
Focus on a journal article relevant to a weekly biosciences seminar series. Repeatable. Prerequisite: consent of instructor. Same as 072:342.

150:302 Biosciences Research  art.
Research experience in the lab of a Biosciences Program faculty member Repeatable.

Doctor of Philosophy
The interdepartmental Ph.D. program in genetics is designed to promote collaborative investigation and intellectual interaction among students and faculty participants affiliated with several different departments.

Students who enroll in the program are encouraged to obtain a broad background in genetics, including molecular, population, and human genetics. Within this context, course requirements are flexible enough to permit students to tailor their formal course work to their individual needs.

Students have the option to declare a Ph.D. emphasis in Computational Genetics.

All students enrolled in the program are required to take the following courses.

All of these:
127:150 Genetic Analysis of Biological Systems  3 s.h.
127:200 Special Topics in Genetics (seminar course)  1 s.h.
156:201 Principles in Molecular and Cell Biology  4 s.h.

One of these:
002:171 Molecular Genetics  4 s.h.
142:210 Advanced Prokaryotic Molecular Biology  3 s.h.

One of these:
002:131 Evolution  4 s.h.
002:168 Genes and Development  3 s.h.
127:191 Human Molecular Genetics  3 s.h.

All of these:
650:270 Responsible Conduct in Research  1 s.h.
Elective course work in molecular and microbial genetics, cell and development genetics, human genetics, or computational genetics  8 s.h.
Seminar courses approved by the program  5 s.h.

Even more important than formal course work is the opportunity to do significant research in genetics. Research interests of the participating faculty include virtually all areas of genetics, ranging from bacteriophage genetics to human medical genetics. In each area of genetics, there is a group of faculty members who have closely related interests.

The University is also strong in several related disciplines, including microbial physiology, enzymology, virology, protein biochemistry, computational genetics, and developmental and cell biology, all of which contribute significantly to the overall training program.

In addition to completing research and course work, students must pass a comprehensive examination, usually at the end of their second year in the program.
Medical Scientist Training Program

Students may combine study toward an M.D. and a Ph.D. in genetics. Information about this program is available from the director of the Medical Scientist Training Program in the Carver College of Medicine.

Dental Scientist Training Program

Students with a D.D.S. degree may be candidates for the dental science program. Information is available through the College of Dentistry.

Admission

Prospective doctoral students in genetics should have a strong undergraduate background in science, including courses in general genetics, organic chemistry, biochemistry, introductory physics, and mathematics, as well as a strong commitment to genetic research and teaching. Students can make up deficiencies in a particular area during their first year of graduate study.

Admission to the program is based on assessment of applicants’ undergraduate academic records, performance on the Graduate Record Examination (GRE) Aptitude Test, and letters of recommendation. Admission requirements are not rigid. Most students currently working toward the Ph.D. in genetics at The University of Iowa have an undergraduate g.p.a. higher than 3.50, and their GRE Aptitude Test scores (verbal and quantitative) exceed 1250. Students with lower grade-point averages or GRE scores may be admitted, depending on prior research experience and other indications of academic potential.

Students generally begin graduate work during the fall semester.

Financial Support

All genetics graduate students receive a financial stipend of $21,000 for academic year 2004-2005, plus tuition.

Financial support comes from training grants, research assistantships, teaching assistantships, scholarships, individual research grants, or other departmental or college funds. All students are required to do some teaching as part of their development as future scientists and faculty members.

Associated Courses

The following courses provide credit toward the Ph.D. in genetics. Not all courses are offered every year.

002:131 Evolution 4 s.h.
002:168 Genes and Development 3 s.h.
033:153 Hard Cases: Science, Policy, and Values—Implications of the Human Genome Project 3 s.h.
061:268 Biology and Pathogenesis of Viruses 2 s.h.
070:110 Medical Genetics 2 s.h.
072:245 Developmental Neurobiology 3 s.h.
099:237 Topics in Biochemistry 1 s.h.
127:170 Bioinformatics 3 s.h.
127:173 Computational Genomics 3 s.h.
142:210 Advanced Prokaryotic Molecular Biology 3 s.h.
142:215 Molecular Biology of Gene Expression 3 s.h.
142:220 Mechanisms of Cellular Organization 3 s.h.
142:225 Mechanisms of Cell Growth and Development 3 s.h.
185:274 Theory of Statistical Genetics 3 s.h.
185:276 Statistical Genetics Laboratory 3 s.h.
650:270 Responsible Conduct in Research 1 s.h.

Courses

127:150 Genetic Analysis of Biological Systems 3 s.h. Genetic techniques and approaches for analysis of biological processes, comparison of strengths, weaknesses of a variety of experimental systems.
127:170 Bioinformatics 3 s.h. Overview of bioinformatics and genomics. Prerequisites: working knowledge of basic concepts in genetics and molecular biology, and grade of B+ or higher in 002:128, or consent of instructor. Same as 002:170.
127:191 Human Molecular Genetics 3 s.h. Molecular genetic approaches to human disease; the human genome project, linkage analysis, candidate gene screening, special features of inbred populations, triplet repeat expansions, mitochondrial genetics, genetics of complex traits. Prerequisites: fundamental genetics and molecular biology, or consent of instructor.
127:200 Special Topics in Genetics 1 s.h. Current research in a selected field of genetics; different topic each year; companion to a genetics seminar series.
127:205 Topics in Human Genetics 1-2 s.h. Current research in human genetics. Prerequisite: 070:110 or 127:191 or consent of instructor.
127:301 Graduate Research in Genetics arr.

Doctor of Philosophy

The program is quite flexible, accommodating students with a wide range of backgrounds in course work as well as practical experience in the biological and physical sciences. Entering students generally are expected to have strong records in biology, chemistry, biochemistry, microbiology, genetics, and mathematics. An introductory course in immunology is desirable. Deficiencies in specific areas often can be remedied through appropriate course work taken during the first year of graduate studies.

The curriculum consists of a sequence of required and elective courses that provide training in the conceptual and methodologic aspects of immunology. There is ample opportunity for study in a variety of fields that interface with immunology.

The following courses are required of all students.

142:215 Molecular Biology of Gene Expression 3 s.h.
148:201 Graduate Immunology I 3 s.h.
148:202 Graduate Immunology II 3 s.h.
148:211 Immunology Seminar (fall and spring registration in first year, spring in second year) 1 s.h.
148:221 Advanced Topics in Immunology 3 s.h.
148:231 Research in Immunology 1-2 s.h.
156:201 Principles in Molecular and Cell Biology 4 s.h. Electives (approved by adviser) 6 s.h.

After successful completion of the comprehensive examination, usually at the end of the second year of graduate study, students advance to candidacy for the Ph.D. degree, devoting most of their time to research and writing the dissertation. Upon successful completion of all requirements, including the dissertation and its oral defense in accord with the rules and regulations of the Graduate College, students are awarded the Ph.D. degree in immunology.

Admission

Information regarding admission and application procedures is available from the program’s office and on its web site.

Financial Support

All students in the Immunology Program receive stipends and tuition support. This support comes from a variety of sources. Available aid includes training grants from the National Institutes of Health, University of Iowa fellowships and graduate research assistantships, and individual faculty research grants.

Facilities

Training is conducted in laboratories and teaching facilities of the Departments of Internal
Science  Adjunct associate professor:

Pawley, Padmini Srinivasan

Associate professors emeriti:

Osborn

Courses

148:040 Summer Undergraduate IDGP Research 0 s.h.

148:201 Graduate Immunology I 3 s.h.

Ontogeny, activation, and function of T lymphocytes and B lymphocytes; innate immune effector mechanisms; major histocompatibility complex; antigen presentation; thymocyte positive and negative selection; signaling of T lymphocytes, B lymphocytes; emphasis on experimental methods for analysis of these processes. Prerequisites: courses in college biology, general chemistry, and introductory immunology. Recommended: courses in biochemistry and genetics. Same as 061:201.

148:202 Graduate Immunology II 3 s.h.

Intercellular adhesion in the immune system, regulation of inflammation and lymphocyte traffic, immunological tolerance, autoimmune diseases, immune responses to viruses and parasites; problem-oriented experimental approaches. Prerequisites: courses in college biology, general chemistry, and introductory immunology. Recommended: courses in biochemistry and genetics. Same as 061:202.

148:211 Immunology Seminar 1 s.h.

Prerequisite: graduate standing in immunology.

148:221 Advanced Topics in Immunology 3 s.h.

In depth analysis of selected areas. Prerequisite: 148:201 or 148:202. Same as 061:207.

148:231 Research in Immunology arr.

Laboratory research. Prerequisite: graduate standing in immunology.

148:251 Principles of Medical Immunology 2 s.h.

Basic molecules, cells, organs of immune system; mechanics and regulations of immune response; clinical principles of normal and abnormal immunity. Prerequisite: medical student standing.

148:301 Directed Study in Immunology arr.

Prerequisite: consent of instructor.

LIBRARY AND INFORMATION SCIENCE

Director: David Eichman

Professors emeriti: Esther Bierbaum, Velva Jeanne Osborn

Adjunct professor: Nancy L. Baker

Associate professors: David Eichmann, Christine Paisley, Padma Srinivasan

Associate professors emeriti: Louane L. Newsome, Carl Orgren

Adjunct associate professor: Jean Donham

Assistant professors: James Elmborg, Marc Light

Graduate degree: M.A. in Library and Information Science

Web site http://www.uiowa.edu/~libsci

Today’s age is defined by the intersection of information, technology, and human creativity. In this context, library and information science is dedicated to understanding the nature of information, the interaction between information and communication technologies, the relationship between information and knowledge, the cognitive and affective aspects of knowledge acquisition, and the interface between people and information. It offers new knowledge, technological benefits, and professional expertise for every dimension of human affairs.

Library and information professionals take on many challenges in serving the needs of their constituencies—children and teachers, members of academic communities, employees of profit and nonprofit organizations, and the public at large—constituencies that range from information poor to information rich. They work in the contexts of issues such as information and communication technology, public and private information policy, managerial policy, and regional, national, and international economics.

The School of Library and Information Science prepares professionals to meet these diverse challenges. It offers a graduate-level program of preparation for careers in all types of libraries and information centers, providing students with a strong, well-rounded education in an environment that supports individuals from all segments of a multicultural, multiethnic, and multilingual society. Its curriculum reflects the profession’s immediate and long-range needs and prepares students to be leaders in a changing field.

By promoting excellence in research, the school contributes to the base of theoretical and practical knowledge in library and information science and helps develop an understanding of how to meet the varied and changing information needs of individuals and society. It also provides public service through continuing education programs, selective consulting services for library and information centers, and participation in professional organizations.

The school strongly encourages its students, faculty members, and alumni to shape the future of the profession by filling key roles in organizations involved in all aspects of the information cycle.

Master of Arts

The master’s program has held continuous accreditation from the American Library Association since 1971.

Students pursuing the master’s degree gain an understanding of the foundations of the library and information profession, including the history of the field, ethical and philosophical concerns, the information cycle, principles and procedures for dealing with a variety of information carriers, and the theory and practice of strategic management. They examine future trends, with emphasis on cutting-edge technological concerns. They study the discipline’s research base, gaining heightened awareness of the synergy between library and information science and other disciplines, as well as the close relationship between research and practice. Finally, students become knowledgeable about the factors that underlie users’ information needs and appropriate strategies to satisfy those needs.

Graduates have many options for employment. Alumni hold positions in public, school, special, and academic libraries as well as other information settings. They serve in varied roles, such as information consultant, database manager, library administrator, webmaster, network coordinator, cataloger, children’s librarian, school library media specialist, and archivist.

Curriculum

The master’s degree in library and information science requires 36 s.h. of graduate credit with a g.p.a. of at least 3.00, and the successful completion of a portfolio. The 36 s.h. include 17 s.h. earned in required core courses and 19 s.h. earned in electives, distributed among four curricular clusters. A thesis option is available for students who wish more research experience.

The curriculum is designed around four cluster areas: foundations/applications, conceptual structures/systems, resources/services, and policy/planning. Students may choose an area of concentration, but they are required to take courses in each cluster.

FOUNDATIONS/APPLICATIONS

Minimum requirement is 6 s.h.

Core Courses

021:101 Foundations of Library and Information Science 3 s.h.

021:202 Research Methods 3 s.h.

Electives

021:282 Practicum in Libraries and Information Centers 2-3 s.h.

021:284 School Library Media Practicum 3 s.h.

021:286 Research Practicum 1-3 s.h.

021:290 Capstone 1 s.h.

021:292 Independent Study 1-3 s.h.

021:299 Thesis 6 s.h.

CONCEPTUAL STRUCTURES/SYSTEMS

Minimum requirement is 7 s.h.

Core Courses

021:120 Design of Automated Systems 3 s.h.

021:122 Organization of Information 1 3 s.h.

Electives

021:123 User Education: Multimedia 3 s.h.

021:124 Database Systems 3 s.h.

021:220 Programming for Text Manipulation 3 s.h.

021:222 Organization of Information II 3 s.h.

021:224 Electronic Publishing 3 s.h.

021:226 Digital Libraries 2 s.h.

021:228 Hypertext Systems 2 s.h.

021:230 Text Retrieval 3 s.h.

021:232 Computer Networks 3 s.h.

021:234 Information Knowledge Management 3 s.h.

021:239 Topics 1-3 s.h.

RESOURCES/SERVICES

Minimum requirement is 5 s.h.

Core Course

021:141 Reference and Information Services 3 s.h.

Electives

021:142 Web Search Engines 1 s.h.

021:143 Resources for Children 3 s.h.

021:144 Resources for Young Adults 3 s.h.

021:240 Collection Management 3 s.h.

021:242 Online Information Systems 2 s.h.

021:244 Government Information Resources 3 s.h.

021:246 Programming for Youth Services 1 s.h.

021:248 Information Literacy 1 s.h.

021:254 Analysis of Scholarly Domains 3 s.h.

021:256 History of Readers and Reading 3 s.h.


### Academic Libraries

The academic library, whether in a community college, a four-year college, or a university, provides information services in support of the teaching, research, and public service missions of the parent institution. These services include instruction in the use of the library and its resources. Management skills and subject or language competence often are required. Since librarians in this setting usually are considered academic faculty members, possession of a second master's or other advanced degree is desirable.

### Special Libraries and Information Centers

Special libraries serve corporations, private companies, government agencies, technical and academic institutions, museums, medical facilities, and information management consulting firms. They are organized to anticipate and quickly respond to the specific information needs of their users. Special librarians are information resource experts who collect, analyze, evaluate, package, and disseminate information to facilitate accurate decision making. Knowledge of information technology and the ability to design services suitable to the parent organization are professional necessities. In addition, substantial subject expertise may be required.

### Transfer Credit

Up to 9 s.h. of graduate credit in library and information science or related areas may be accepted in transfer from another institution, subject to the approval of the transfer credit committee. Approval is given on a course-by-course basis and is determined by evaluating the course’s content, currency, and applicability to the student’s program.

### Completion Time

Students typically complete the program in a year and a half. The maximum load for graduate students is 15 s.h. during regular semesters and 8 s.h. during summer sessions, but most full-time students carry fewer semester hours than the maximum allowable load. It also is possible to complete the program on a part-time basis.

### Specializations

Students earn 19 s.h. in elective courses selected with the guidance of their adviser. A student’s program is often designed around particular career goals. Following are examples of possible specializations.

### Public Libraries

Public libraries provide informational, educational, and recreational materials and a wide range of services for a diverse clientele. Although public libraries receive the bulk of their funding from local taxes, they also may be organized on a regional or statewide cooperative basis. The variety of uses, services, materials, and organizational structures of public libraries makes this a challenging area of librarianship. Public librarians need to develop skills in analyzing the communities they serve, designing comprehensive marketing plans to meet their needs, implementing the plans in a cost-effective way, and evaluating the success of their efforts.

### Joint Degree Programs

The School of Library and Information Science has established joint degree programs with the Tippie College of Business and the College of Law. The primary goal of these joint programs is the integration of the two areas of study.

To enroll in a joint program, students must be admitted to the School of Library and Information Science and to the other unit. Up to 9 s.h. in business or law may be applied toward the M.A. in library and information science; up to 9 s.h. in library and information science may be applied toward the M.B.A., and 12 s.h. may be applied to the J.D.

In addition to these formal joint programs, arrangements can be made for joint programs between departments on an ad hoc basis. A minimum of 60 s.h. of graduate work is required for a joint master’s degree program.

For more information on the joint J.D. degree, see the College of Law section of the Catalog.

## Facilities and Resources

The School of Library and Information Science is housed in the south wing of the University's Main Library, in a setting that promotes community among students, faculty, and staff. Facilities are provided for the varied instructional and research activities of the school.

### Technology Laboratory

The school houses a state-of-the-art technology laboratory with current Pentium and Macintosh computers. The computers are networked to the campus backbone and provide access to a rich variety of relevant software. The laboratory is used primarily by students for course assignments and to gain experience with specialized software. In addition, the classrooms are equipped with networked machines that allow faculty members to use teaching technologies in their courses. Finally, an Apple XServer is used to deliver and maintain a common software environment. Students have access to Dialog, LEXIS, NEXIS, OCLC databases, Westlaw, and a wide variety of library automation products. They also are given an account for file storage.

### Research Laboratory

The facilities of the school’s research laboratory are used by faculty members and students to investigate current problems, such as distributed information retrieval, cross-language information retrieval, and information filtering. They are available for student-based research investigations.

### University Libraries

All of the resources of the University Libraries are available to students and faculty of the school. The system contains more than 4 million volumes in the Main Library and 11 departmental libraries.

The web-based catalog provides access to books and periodicals, electronic indexes, and full-text databases held by The University of Iowa Libraries. In addition, the Gateway to Online Resources provides access to selected Internet and CD-ROM resources arranged by subject and
academic discipline. Wireless Internet access is available in many areas of the Main Library. Students also have full access to the Information Arcade, which facilitates integration of new information and multimedia technologies with learning and research. Here students find a variety of electronic resources for learning advanced information skills and for gaining access to information in various formats and through various networks, including the Internet. The Arcade also houses an electronic classroom.

The third floor of the Main Library houses the government publications, map, and special collections rooms, including the Iowa Women’s Archives.

Other Libraries

Students have access to a variety of libraries through field trips, practicum experience, and personal use: the State Historical Society Library in Iowa City; the Iowa City, Coralville, and Cedar Rapids public and school libraries; the Augustana, Coe, Cornell, Mount Mercy, and Grinnell College libraries; and the Herbert Hoover Presidential Library in West Branch.

The Iowa City Public Library, located only four blocks from the Main Library, was one of the first public libraries in the nation to convert to a totally computerized catalog. Its service philosophy and contemporary management practices provide students with an innovative public library model. The Iowa City Community School District’s media program has been recognized nationally for its excellence in information skills curriculum and for leadership in technology.

Other Resources

Lindquist Center, located across the street from the Main Library, houses the Learning Resources Center of the College of Education and Information Technology Services. The resource center consists of the Video Lab, Computer Resource Lab, Audiovisual Production Lab, and Curriculum Resources Lab. The Curriculum Resources Lab contains an extensive collection of book and nonbook instructional materials for children in preschool through grade 12. It is especially valuable for students interested in school or public library work.

Information Technology Services provides instructional and research computing facilities and services for the University community. All University students, staff, and faculty may use the center’s computers for University-related research, thesis preparation, and class work. Instructional Technology Centers provide campuswide access to the University’s academic computing resources and the Internet.

Student Activities

All students in the program are automatically members of LISSO, the Library and Information Science Student Organization, which also serves as the student chapter of the American Library Association. In addition, there are student chapters of the American Society for Information Science and Technology (ASIST) and Special Libraries Association (SLA). These student-run organizations sponsor various activities such as speaker series, workshops, brown bag lunches, and picnics. The associations provide students with significant opportunities for professional and extracurricular growth. Students also are encouraged to join other state and national professional organizations.

Honor Society

The Beta Beta Theta Chapter of Beta Phi Mu, the international honor society for library and information science, is located at The University of Iowa. Each year new members are chosen from the top 25 percent of the preceding year’s graduating classes. To be eligible for membership, graduates must have achieved a g.p.a. of at least 3.75, demonstrated professional promise, and been recommended by the faculty.

Placement

The school provides active placement assistance to its graduates through printed and electronic announcements, seminars on Internet job searching, resume writing and interviewing, and personal counseling. The University’s Educational Placement Office issues a regular listing of job openings and provides a credential file service.

According to the annual placement survey in Library Journal, Iowa’s placement rate consistently ranks among the highest for ALA-accredited programs. Iowa graduates find positions in all types of libraries. The placement distribution for six recent years was: academic libraries, 38 percent; public libraries, 28 percent; special libraries, 17 percent; and school libraries, 17 percent. Iowa graduates currently work in libraries in 46 states and 9 foreign countries. Strong personal and academic qualifications, job flexibility, and geographic mobility are important factors in obtaining a position.

Admission

Applicants for admission to the M.A. program are required to have a g.p.a. of at least 3.00 on a 4.00 scale and are required to take the GRE General Test. The admissions committee also considers each applicant’s letters of recommendation, statement of purpose, and other appropriate criteria. Each entering class is selected on a competitive basis.

International students whose first or official language is not English are required to take the Test of English as a Foreign Language (TOEFL) and score at least 600 on the paper-based test or 250 on the computer-based test. Applicants are invited to begin the admission process by contacting the School of Library and Information Science. The process requires a completed application form, transcripts of all academic work, a written statement of purpose and goals, three letters of recommendation, and an on-campus or telephone interview with members of the faculty.

Completed applications should be received by the school by February 1 for consideration for fall admission. Decisions of the admissions committee are announced three to four weeks after the deadline. Late applications are considered if places are still available. Financial aid, however, is often not available for late applicants. Admitted students are immediately assigned a faculty adviser for program planning.

Financial Support

The School of Library and Information Science awards partial-tuition scholarships and one-quarter-time graduate assistantships. To be considered for scholarships or assistantships, applicants should have an undergraduate g.p.a. of at least 3.00 and a combined score (verbal, quantitative, and analytical) of 1700 on the old GRE General Test, or 1100 (verbal and quantitative) and 4.5 (analytical writing) on the new GRE. Prospective students are urged to apply for these awards before February 1. For information on student loans, work-study eligibility, or other financial assistance, contact the Office of Student Financial Aid. Information on national scholarships is available from the school or on its web site. Part-time employment usually is available in the University Libraries and other campus units.

Courses

021:090 Information Handling

3 s.h.
Gathering, evaluating, and employing information from library and nonlibrary sources, including multimedia and electronic systems.

021:101 Foundations of Library and Information Science

3 s.h.
Theories on representation and transformation of information and knowledge; major issues in library and information professions, including intellectual freedom, professional ethics, intellectual property, literacy, role of libraries and information agencies in society.

021:120 Design of Automated Systems

3 s.h.
Introduction to analysis, specification, and design of automated systems; review of the software life cycle, testing, deployment, and evaluation of large, complex computer-based systems.

021:122 Organization of Information I

3 s.h.
Theory, principles, and standards in organization of information; function of catalog, indexes, bibliographic networks; introduction to metadata descriptions, name and title access, subject analysis, controlled vocabularies, classification systems. Prerequisite: junior standing.

021:123 User Education: Multimedia

3 s.h.
Learning theory as it relates to design of multimedia products for user education; presentation of information using multimedia technology in a Macintosh environment; development of user education products in linear and nonlinear forms.

021:124 Database Systems

3 s.h.
Theory and methodologies for semantic, logical, and physical database design; languages for query and manipulation of information; normalization; optimization, processing of concurrent transactions. Prerequisite: 021:101.

021:134 Instructional Video Production

3 s.h.
Same as 067:134.

021:141 Reference and Information Services

3 s.h.
Resources and services; essential reference services and experience using a variety of print and electronic resources to answer specific reference questions.

021:142 Web Search Engines

1 s.h.
World Wide Web search engines and the spiders, robots, etc., that back them; issues of information currency, query effectiveness, topic discrimination; tools to analyze, assess, and employ facilities as information resources.

021:143 Resources for Children

3 s.h.
Evaluation and selection of developmentally appropriate resources for preadolescent children.

021:144 Resources for Young Adults

3 s.h.
Evaluation and selection of resources appropriate for adolescents.
021:202 Research Methods 3 s.h.
Concepts and methods for research in library and information science; emphasis on design of qualitative and quantitative research; data collection techniques appropriate to information professions; examination and evaluation of research in the professional literature.

021:220 Programming for Text Manipulation 3 s.h.
Hands-on experience manipulating textual data; tools, concepts, programming language introduced as needed; examples from web resource access, digital libraries, linguistic corpora. No programming experience required.

021:222 Organization of Information II 3 s.h.
Systematic description and analysis of information in catalogs; organizing them for effective retrieval in libraries, museums, and other information centers; AACR2 descriptive principles; Dewey and Library of Congress, Sears and LC subject headings, cataloging networks and services. Prerequisite: 021:122.

021:223 Organization of Information III 3 s.h.
Special problems in description of materials; authority work; file structures; serials, other nonmonographic materials; Library of Congress, other classifications; subject retrieval; reclassification, other administrative issues; international bibliographic criteria; online cataloging experience. Prerequisite: 021:222.

021:224 Electronic Publishing 3 s.h.

021:226 Digital Libraries 2 s.h.
Current digital libraries: models, methods, tools that support digital libraries. Prerequisite: 021:120.

021:228 Hypertext Systems 3 s.h.
Theory, design, and implementation of hypertext-based information systems; access mechanisms, including navigation, searching, and washing; issues in representation of information, user interfaces; case studies of representational systems, including the World Wide Web. Prerequisite: 021:101.

021:230 Text Retrieval 3 s.h.
Theory for automatic text retrieval and retrieval of text using database retrieval methodologies; alternative query models—Boolean, extended Boolean, probabilistic, vector fuzzy, rough set models; vocabulary normalization; web search engines, metadata. Prerequisite: 021:120 or consent of instructor. Same as 06K:236.

021:232 Computer Networks 3 s.h.
Fundamental concepts in telecommunications and networking; survey of network technologies and services, with emphasis on understanding digital data communications and their role in business organizations. Prerequisites: 06K:220 and 22C:106. Same as 06K:250.

021:234 Information Knowledge Management 3 s.h.
Issues in distributed, networked, heterogeneous, and dynamic information environments (intranets, web); hypermedia, XML, CGI, and scripting languages; algorithms for coping with information overload and scalability challenges; crawlers, search engines, information filtering, information agents and brokers. Corequisites: 06K:230 or 06K:250. Same as 06K:234.

021:239 Topics: Conceptual Structures/Systems 1-3 s.h.
Special topics relevant to conceptual structures (e.g., knowledge, representation, manipulation schemes) and systems (e.g., intelligent OPACS, user interface technologies). Repeatable. Prerequisite: 021:120.

021:240 Collection Management 3 s.h.
Collection management of print and electronic resources; selection and management principles, policies, procedures in various settings; production and distribution of resources; intellectual freedom.

021:242 Online Information Systems 2 s.h.
State-of-the-art online information systems, free-based and fee-based; theories and behavioral models in information seeking, user-centered library and information center services, design of internal management information systems for decision making, creating a climate conducive to change.

021:246 Digital Libraries 2 s.h.
Design of library digital libraries, development of philosophy, analysis of functions, program/personnel evaluation, emphasis on curricular and teaching roles of library media specialists.

021:260 Strategic Management 2 s.h.
Principles of strategic planning, management, leadership; user-centered library and information center services; intellectual freedom. Emphasis on federal documents as an information resource; state, local, and federal programs and policies; emphasis on planning and organizing services for effective delivery. Prerequisite: 021:122.

021:262 School Library Media Administration 2 s.h.
Principles of management in the educational environment; management of school library media centers; development of philosophy, analysis of functions, program/personnel evaluation; emphasis on curricular and teaching roles of library media specialists.

021:263 Nonprofit Organizational Effectiveness I 3 s.h.

021:264 Program Evaluation 1 s.h.
Programs, case studies in the area of program evaluation, including program, evaluation, accreditation, funding support; strategies for evaluating programs, including cost-benefit analysis, outcomes-based evaluation, output measures, standards for program evaluation, relationship between institutional mission, evaluation. Prerequisite: 021:202.

021:265 Nonprofit Organizational Effectiveness II 3 s.h.
The management of nonprofit organizations; examination of issues and problems affecting academic libraries.

021:269 Archives Administration 3 s.h.
Purpose and function of archival repositories; elements of archival practice—collection solicitation, appraisal, arrangement and description of collections, preservation and conservation, reference, outreach.

021:270 Public Libraries 3 s.h.
Historical development of public libraries; current issues in public library management and policy making, including intellectual freedom; readers advisory service and genres of popular materials for adults.

021:271 College and University Libraries 3 s.h.
Objectives, organization, unique functions and services of academic libraries; examinations of academic libraries; examination of issues and problems affecting academic libraries.

021:272 Special Libraries 3 s.h.
Management, organizational structures, collections, client services in special libraries; state and federal law governing libraries, information centers, projects that apply theoretical principles.

021:273 Information and Law 2 s.h.
Legal information and services; policy and planning issues.

021:275 Health Informatics I 3 s.h.
Technological tools that support health care administration, management, and decision making. Prerequisite: graduate standing or consent of instructor. Same as 06K:225, 050:283, 051:187, 056:188, 061:247, 096:283, 174:226.

021:278 Information Policy 2 s.h.
Policy development based on ethical and legal issues in library and information professions; intellectual freedom, intellectual property, privacy, equity.

021:279 Topics: Policy/Planning 1-3 s.h.
Current topics in national and international policies, their impact on planning. Repeatable. Prerequisite: 021:260.

021:280 Health Informatics II 3 s.h.
Research in information science; emphasis on information science; centers; emphasis on policy and practice; at least 80 hours of fieldwork. Prerequisite: 021:122.

021:284 School Library Media Practicum 3 s.h.
Supervised field experience in school library media centers at elementary and secondary school levels; emphasis on application of theory to practice; at least 80 hours of fieldwork. Prerequisite: 021:262.

021:286 Research Practicum 1-3 s.h.
Student research conducted in conjunction with a faculty member's research. Prerequisite: 021:202 and consent of instructor, advisor, and director.

021:290 Capstone 1 s.h.
Selected issues such as information policy, role of public libraries in raising reading literacy; complements 021:101. Prerequisite: 021:120.

021:292 Independent Study 1-3 s.h.
Formal contact between student and faculty member. Prerequisites: consent of instructor and formal proposal.

021:299 Thesis 6 s.h.

Molecular Biology

Director: Minnetta V. Gardiner (Pharmacology)
Affiliated faculty: Michael Apicella (Microbiology), Nikolai Arternyev (Physiology and Biophysics), Jackie Bickenbach (Anatomy and Cell Biology), Gail Bishop (Microbiology), Kevin Campbell (Physiology and Biophysics), Steven Cieg (Microbiology), Michael Cohen (Pathology), Beverly Davidson (Internal Medicine), Frederick Domann (Radiation Oncology), John E. Donelson (Biochemistry), Martine Dunnwald (Dermatology), John Engellard (Anatomy and Cell Biology), Sarah England (Physiology and Biophysics), Michael Feiss (Microbiology), Rory Fisher (Pharmacology), Sonya Franklin (Chemistry), Alice Fulton (Biochemistry), Minnetta Gardiner (Pharmacology), Pamela Geyer (Biochemistry), Prabhat Goswami (Radiation Oncology), Steven Green (Biological Sciences), E. Peter Globock (Microbiology), Gregory S. Hageman (Ophthalmology and Visual Sciences), Johannes Hell (Pharmacology), Mary Horne (Pharmacology), Aloyius Klinefjuth (Microbiology), John Koland (Pharmacology), C. Michael Krudonis (Pathology), Amonn Kohen (Chemistry), Michael Lesko (Pathology), Michele Lunetta (Internal Medicine), Gloria Lee (Internal Medicine), Steven Lentz (Internal Medicine), Andrew Lidlar (Orthodontics), Jim Jung-Ching Lin (Biological Sciences), Wendy Maury (Microbiology), John R. Menninger (Biological Sciences), Scott Moyer-Rodney (Physiology and Biophysics), Jeffrey Murray (Pediatrics), William M. Nauess (Internal Medicine), Henry Paulson (Neurology), David Price (Biochemistry), Dawn Quelle (Pharmacoogy), Michael Rebagliati (Anatomy and Cell Biology), Richard Roller (Microbiology), Peter A. Rubenstein (Biochemistry), Andrew Russo (Physiology and Biophysics), David Shefl (Pharmacology), Curt D. Sigmund (Internal Medicine), Mark Stammes (Physiology and Biophysics), Mark F. Struck (Microbiology), Kevin Suner (Internal Medicine), C. Martin Stoltzus (Microbiology), Edwin Stone (Ophthalmology and Visual Sciences), Steven Strack (Pharmacology), Christine Thomas (Internal Medicine), Lubnir P. Turek (Pathology), Lori Waltrath (Biochemistry), Daniel Wees (Biochemistry), Lois S. Weizman (Biochemistry), David Weiss (Microbiology), Michael Welsh (Internal Medicine), Mary Wilson (Internal Medicine), Marc Wold (Biochemistry), Charles Yeaman (Anatomy and Cell Biology), Joseph Zahnier (Internal Medicine)

Graduate degree: Ph.D. in Molecular Biology
Web site: http://molbio.grad.uiowa.edu
Doctor of Philosophy

The Molecular Biology Program provides interdisciplinary training in the concepts and methodologies fundamental to the investigation of biological mechanisms at the molecular level. Faculty members are involved in a variety of research projects related to gene expression and regulation. The principal didactic component of the program is a sequence of core courses in molecular and cellular biology. Students engage in laboratory research immediately upon enrollment and progress rapidly to original thesis projects that lead to a Ph.D. in molecular biology.

The program is sufficiently flexible to accommodate students with a wide range of backgrounds in the biological and physical sciences. Entering students are expected to have a solid background in science, including introductory biology and chemistry, organic chemistry, physical chemistry, calculus, genetics, and biochemistry. Students can remedy deficiencies in particular areas by taking appropriate courses during the first year of graduate study.

The curriculum consists of a sequence of required and elective courses that provide didactic training in molecular biology and ensure a comprehensive exposure to concepts and experimental methodologies in the field. Because of the diversity of biological research problems that can be pursued by employing molecular biological approaches, the program provides a variety of options for specialization in particular areas of interest.

REQUIRED COURSES

The following courses are required of all students.

156:201 Principles in Molecular and Cell Biology (fall) 4 s.h.
One of these (fall or spring):
142:210 Advanced Prokaryotic Molecular Biology 3 s.h.
142:215 Molecular Biology of Gene Expression 3 s.h.
One of these (fall or spring):
142:220 Mechanisms of Cellular Organization 3 s.h.
142:225 Mechanisms of Cell Growth and Development 3 s.h.
Biochemistry/chemistry core (see list below) 3 s.h.
Pharmacology/physiology core (3 s.h. minimum, see list below) 3 s.h.
All of these:
142:280 Topics in Molecular Biology (fall and spring, precomprehensive students register each semester, postcomprehensive students participate in journal club of their choice) 1 s.h.
142:290 Seminar in Molecular Biology (all students register each semester) 1 s.h.
650:270 Responsible Conduct in Research 1 s.h.

CORE REQUIREMENT

Biochemistry/Chemistry:
004:180 Introduction to Molecular Modeling 3 s.h.
004:205 Bioinorganic Chemistry 3 s.h.
004:211 Chemical Catalysis in Biology 3 s.h.
099:241-099:242 Biophysical Chemistry I-II 6 s.h.
Pharmacology/Physiology:
002:155 Cell Physiology 4 s.h.
061:260 Graduate Microbial Physiology 3 s.h.
071:135 Principles of Pharmacology 4 s.h.
072:153 Graduate Physiology 4 s.h.

In addition, all students are required to complete at least 6 s.h. chosen from the approved elective courses.

After successful completion of the comprehensive examination, usually at the end of the second year of graduate study, students advance to candidacy for the Ph.D. degree, where they devote full-time effort to completing thesis research and writing the Ph.D. dissertation. Upon successful completion of all requirements, including the dissertation and its oral defense in accordance with rules and regulations of the Graduate College, students are awarded a Ph.D. degree in molecular biology.

Admission

Individuals seeking application materials and information about graduate training in molecular biology should contact the Molecular Biology Program.

Financial Support

Graduate students in the Molecular Biology Program receive stipends and tuition support from institutional and extramural sources, including training grants from the National Institutes of Health as well as University of Iowa fellowships and graduate research assistantships.

Facilities

Training is conducted primarily in laboratories and teaching facilities of the Departments of Anatomy and Cell Biology, Biochemistry, Biological Sciences, Chemistry, Dermatology, Internal Medicine, Microbiology, Neurology, Ophthalmology and Visual Sciences, Pathology, Pediatrics, Pharmacology, Physiology and Biophysics, and Radiation Oncology. Faculty laboratories and central research facilities available to students provide access to the most up-to-date research equipment.

Courses

142:210 Advanced Prokaryotic Molecular Biology 3 s.h.

142:215 Molecular Biology of Gene Expression 3 s.h.
Principles and techniques for investigating mechanisms of controlling eukaryotic gene expression, basic genome organization, chromatin structure, transcription, RNA processing, translation, cloning methods, use of electronic sequence databases, footprinting, chromatin immunoprecipitation, in vivo and in vitro transcription assays, DNA microarray analysis, information retrieval. Prerequisite: 156:201.

142:220 Mechanisms of Cellular Organization 3 s.h.
Integration of concepts of cell biology, original research data concerning structure, chemistry, function of cellular organelles and their assembly, emphasis on relation of cellular structure, function from macromolecular to organelle-levels of organization, plasma membrane, endoplasmic reticulum, cytoskeleton, centriole and centrosome; Golg apparatus, lysosome, mitochondria, nucleus. Prerequisite: 099:130 or equivalent. Same as 002:216, 072:230.

142:225 Mechanisms of Cell Growth and Development 3 s.h.
Mechanisms that control cell proliferation and differentiation, cancerous transformation, and normal embryonic development, current understanding of intracellular signaling processes, cell cycle control, oncogenes and tumor suppressor genes, mechanisms of apoptosis (programmed cell death), and cellular senescence (aging). Prerequisite: 156:201 or consent of instructor. Same as 061:225, 072:235.

142:280 Topics in Molecular Biology 1 s.h.
Opportunity to work closely with participating faculty to gain skill in critical reading of research literature and facility in presenting the material to an audience. Repeatable. Prerequisites: advanced graduate standing and consent of instructor.

142:290 Seminar in Molecular Biology 1 s.h.
Research findings in molecular biology. Repeatable. Prerequisite: graduate standing in molecular biology or consent of instructor.

142:299 Mechanisms of Parasitism Journal Club 1 s.h.
Reviews of recent publications in molecular parasitology research literature and thesis research by training grant or journal club students. Same as 061:299.

140:301 Directed Study in Molecular Biology arr.
Prerequisite: consent of instructor.

142:305 Molecular Biology Research arr.
Prerequisites: graduate standing in molecular biology and consent of instructor.

NEUROSCIENCE

Chair: Daniel Tranel (Neurology)

Affiliated faculty: Paul J. Abbas (Speech Pathology and Audiology), Francois Abboud (Internal Medicine), Harold Adams (Neurology), Ralph Adolphs (Neurology), Steven Anderson (Neurology), Nancy C. Andreae (Psychiatry), Mark Arnold (Chemistry), Jose Assouline (Anatomy and Cell Biology), Gary Baumbach (Pathology), Antoine Bechets (Neurology), Daniel Bonthius (Pediatrics), Timothy Brennan 

(Anesthesiology), Kevin P. Campbell (Physiology and Biophysics), Mark Chapleau (Internal Medicine), Kelly J. Cole (Exercise Science), Robert A. Corneli (Anatomy and Cell Biology), Michael E. Dailey (Biological Sciences), Antonio Damasio (Neurology), Hanna Damasio (Neurology), Warren Darlington (Exercise Science), Beverly Davidson (Internal Medicine), Robin Davison (Anatomy and Cell Biology), Jeffrey L. Dengburg (Biological Sciences), Daniel Ebert (Biological Sciences), Frank Faraci (Internal Medicine), Robert Felder (Internal Medicine), Robert Franciscus (Anthropology), John Freeman (Psychology), Bruce J. Gantz (Otolaryngology—Head and Neck Surgery), Minnetta Gardner (Pharmacology), Gerald F. Gehbhart (Pharmacology), Thomas Grabowski Je (Neurology), Steven Green (Biological Sciences), Donna Hammond (Anesthesiology), Donald D. Heistad (Internal Medicine), Johannes Hell (Pharmacology), Matthew Howard III (Neurosurgery), Richard R. Hurtig (Speech Pathology and Audiology), Jean Y. Jew (Anatomy and Cell Biology), Alan J. Johnson (Physiology and Biophysics), Alan Kay (Biological Sciences), Gloria Lee (Internal Medicine), Jack Lilien (Biological Sciences), Ramon Lim (Neurology), Steven Luck (Psychology), Steven Moore (Pathology), M. Sue O’Donosio (Pediatrics), Daniel O’Leary (Psychiatry), Nicholas J. Fantanz (Anatomy and Cell Biology), Jane Paulsen (Psychiatry), Henry Paulson (Neurology), Stanley Perlman (Pediatrics), Robert Philibert (Psychiatry), Amy Poremba (Psychology), Matthew Rizzo (Neurology), Andrew Russo (Physiology and Biophysics), E. Irwin Shilati (Physiology and Biophysics), Kathleen Siuca (Physical Therapy), Stefan Stank (Pharmacology), William Talman (Neurology), Daniel Tranel (Neurology), Christopher Turner (Speech Pathology and Audiology), Gary W. Van Hoesen (Anatomy and Cell Biology), Ruth Wachtel (Anesthesiology), Michael Wall (Neurology), Edward A. Wasserman (Psychiatry), Michael Welsh (Internal Medicine), John Wemmie (Psychiatry), Terence H.
The following nine courses form the core of the Neuroscience program.

### Doctor of Philosophy

The Neuroscience Program curriculum is designed around three tracks: molecular/cellular, developmental/systems, and cognitive/behavioral. Students specialize in one of the tracks. The curriculum for each student is tailored to meet his or her needs, depending on the student’s background and choice of track. All Neuroscience Program students must complete a set of core courses in addition to course work appropriate for their chosen tracks.

Within a framework of core, track-specific, and elective courses, each student pursues a program of study individually designed according to his or her undergraduate training and graduate research goals. After enrolling in the Neuroscience Program, entering students consult with the advisory committee regarding their level of preparation for the program’s required courses. Students who have completed certain background requirements before enrolling may be granted advanced standing.

The Advisory Committee meets with all first- and second-year graduate students once each semester, helping each student explore his or her research interests and select faculty mentors for the required laboratory rotations. Each student is expected to complete three rotations in faculty laboratories before selecting a thesis adviser. Rotations ordinarily last 12 weeks but may last from 8 to 16 weeks. Under special circumstances, two rotations may be in the same laboratory, an arrangement that permits the student to learn a variety of techniques and approaches before settling down to work on the dissertation project. Students usually choose a dissertation lab at the end of their first year.

### Financial Support

Full-time Neuroscience Program students receive stipends and full tuition scholarships through fellowships and research assistantships. Awards are renewed annually, based on satisfactory progress and availability of funds. For 2004-05, the standard stipend for graduate students is $21,000. University of Iowa Presidential Fellowships, awarded on a competitive basis to incoming UI graduate students, provide entry-level stipends of $21,000 per year (a supplement provided by the Neuroscience Program raises this entry-level stipend to $23,000 per year).

The Neuroscience Program is committed to supporting its graduate students for their entire training period. Students normally are supported in the first year by the program. After that, students are expected to be supported by their primary research mentor. Occasionally, advanced students are supported through teaching assistantships. Tuition is paid for all students.

### NIH Training Grant

The Neuroscience Program is supported by a training grant from the National Institutes of Health. The grant provides stipend and tuition support for a select group of first- and second-year graduate students.

### Facilities

Training is conducted primarily in the laboratories and teaching facilities of the graduate Departments of Anatomy and Cell Biology, Biological Sciences, Biochemistry, Exercise Science, Pharmacology, Physiology and Biophysics, Psychology, and Speech Pathology and Audiology, and the clinical departments of Internal Medicine, Neurology, and Psychiatry. Students use faculty laboratories and central research facilities for ultrastructural analysis; histochemistry and immunocytochemistry; electrophysiology; fluorescence-activated cell sorting; cellular and subcellular biochemistry; cell, tissue, and organ culture; and classical and conditional conditioning; molecular biology; behavioral genetics; neural substrates of complex behavior; brain-behavior relationships in humans; neuropsychology; and functional neuroimaging (PET, fMRI).

### Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>132:180</td>
<td>Fundamental Neuroscience</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>132:181</td>
<td>Neurophysiology</td>
<td>3-4 s.h.</td>
</tr>
<tr>
<td>132:230</td>
<td>Methods in Neuroscience</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>132:234</td>
<td>Medical Neuroscience</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>132:240</td>
<td>Topics in Cognitive Neuroscience</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>132:246</td>
<td>Developmental Neurobiology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>156:201</td>
<td>Principles in Molecular and Cell Biology (molecular track)</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>650:270</td>
<td>Responsible Conduct in Research</td>
<td>1 s.h.</td>
</tr>
</tbody>
</table>

### Admission

Information about predoctoral and postdoctoral training opportunities in the neurosciences is available from the Neuroscience Program office and on the program’s web site.

### Williams (Anatomy and Cell Biology), Chun-Fang Wu (Biological Sciences)

Graduate degree: Ph.D. in Neuroscience

Web site: http://www.uiowa.edu/~neuro
Graduate College • Neuroscience

132:301 Directed Study in Neuroscience arr.

132:305 Neuroscience Research arr.
Prerequisites: graduate standing in neuroscience and consent of instructor.

132:335 Topics in Systems Neuroscience 1-2 s.h.
Conceptual and technical issues in selected areas of systems neuroscience; emphasis on current papers, discussions. Offered fall semesters. Prerequisite: 132:234 or consent of instructor.

RHETORIES OF INQUIRY (POROI)

Director: Thomas Swais (English/Rhetorics of Inquiry)
Curriculum committee: David Depew (Communication Studies/Rhetorics of Inquiry), Leslie H. Margolin (Counseling, Rehabilitation, and Student Development/Rhetorics of Inquiry), Joanna Ploeger (Communication Studies), Merrie Snell (Rhetorics of Inquiry), Daniel Wise (student representative/Communication Studies)
Graduate nondegree program: certificate in Rhetorics of Inquiry
Web site: http://www.uiowa.edu/~poroi

The Project on Rhetoric of Inquiry (POROI) is an interdisciplinary program that explores how scholarship and professional discourse are conducted through argument, how paradigms of knowledge are sensitive to social-political contexts, and how the presentation of scholarly and professional findings is an audience-sensitive process.

POROI began informally in 1980. Its activities now include seminars, workshops, national conferences, a variety of classes, and a peer-reviewed online journal. Together with the Graduate College, POROI also offers a graduate certificate program.

Certificate

Students may pursue the Certificate in Rhetorics of Inquiry in conjunction with a graduate degree in any field. The certificate program in rhetorics of inquiry gives students the opportunity to enhance their abilities to argue in oral, written, and multimedia forms within their own disciplines, and to enhance their understanding of the similarities and differences among various fields.

The program’s objectives are to:
• help students cultivate habits of interdisciplinary study and research through reading, writing, and conversation;
• encourage students to cross conceptual and institutional boundaries that often appear to separate the arts, humanities, and professions from each other and from the social, natural, and formal sciences;
• improve students’ awareness of the rhetorical dimensions of argumentation and inquiry; and
• certify that students who have completed the program are prepared to do rhetorical and cross-disciplinary work after they graduate.

Requirements

In order to earn the Certificate in Rhetorics of Inquiry, students must complete four courses offered by POROI, including 160:200 Introduction to Rhetorics of Inquiry.

Admission

Master’s and doctoral candidates in good standing are eligible to register for the certificate program. A brief registration form is available on the POROI web site.

Courses

POROI courses are open to certificate students and to those not enrolled in the certificate program.

160:100 Introduction to Rhetorics of Science 3 s.h.
A brief introduction to rhetorical considerations of science, including contested claims about social construction of science. Repeatable.

160:200 Introduction to Rhetorics of Inquiry 3-4 s.h.
How rhetorical analysis can clarify contested issues about science (e.g., how boundaries are drawn between sciences and between science and non-science; relation between science and technology; the role of rhetoric in the evolution of science). Repeatable.

160:210 Independent Study Rhetorics of Inquiry 1-4 s.h.
Prerequisite: 160:200. Repeatable.

160:211 Conflict, Negotiation, and Planning 3 s.h.
How arguments are used in academic and professional disciplines to resolve disputes, to negotiate the allocation of resources, and to manage planning. Repeatable.

160:216 Writing for Learned Journals 1-4 s.h.
Help for graduate students in bringing written work to publishable form; analysis of target journals’ audiences and criteria of successful disciplinary argument; topics vary. Same as 102:216.

160:300 Writing for Learned Journals 1-4 s.h.
Help for graduate students in bringing written work to publishable form; analysis of target journals’ audiences and criteria of successful disciplinary argument; topics vary. Same as 102:216.

160:302 Writing Political Science 2-4 s.h.
Practice in planning and completing political inquiries; emphasis on writing for scholarly publication. Prerequisite: doctoral standing in political science or consent of instructor.

160:307 Rhetorics of Technology and Technoscience 2-4 s.h.
Survey of rhetorical sites and situations involving technology; rhetorical criticism of technological and technoscientific discourses; evaluation and construction of theories about technoscientific discourses and practices. Same as 160:315.

160:313 Digital Rhetoric 3 s.h.
Current discourse (utopic, dystopic, other strands) about the technological and technoscientific transformation of society, including contested claims about social construction of technology. Repeatable.

160:315 Digital Rhetoric 3 s.h.
Current discourse (utopic, dystopic, other strands) about the technological and technoscientific transformation of society, including contested claims about social construction of technology. Repeatable.

160:330 Colloquium in Political Theory 1-4 s.h.
Topics vary.

160:340 Current Issues in Rhetoric 3 s.h.
Ethical, social, or cultural issues; rhetoric’s role in their contemporary significance; traditional aspects of rhetoric; their pertinence to present concerns. Same as 008:315, 010:340, 036:317.

160:400 Writing Dissertations 3-4 s.h.
Peer criticism of draft dissertation chapters and prospectuses, associated activities, such as construction of curriculum vitae, letters of application, interview strategies, presentations at campus visits.

160:505 Seminar: Comparative Disciplinary Rhetoric 2-4 s.h.
Conceptual and conventional differences between discourses in various fields of inquiry; role of rhetoric in establishing conditions and criteria of successful disciplinary argument; topics vary. Same as 036:334.

160:510 Topics in Rhetorics of Inquiry 2-4 s.h.
Theoretical or practical investigation of scientific knowledge and rhetorical processes. Repeatable. Same as 650:510.

SECOND LANGUAGE ACQUISITION

Directors: L. Kathy Heileen (French and Italian/Curriculum and Instruction), Judith Liskin-Gasparro (Spanish and Portuguese)
Affiliated faculty: Stephen M. Alessi (Psychological and Quantitative Foundations), Micheline Chaltoub-Deville (Curriculum and Instruction), William D. Davies (Linguistics), Michael E. Eversen (Curriculum and Instruction), Elena Gavryseva (Linguistics), Yukiko Abe Hatasa (Asian Languages and Literature), L. Kathy Heileen (French and Italian/Curriculum and Instruction), Richard Hurtig (Speech Pathology and Audiology), Chuanren Ke (Asian Languages and Literature), Paula Kemppinsky (Spanish and Portuguese), Judith E. Liskin-Gasparro (Spanish and Portuguese), Sue K. Otto (Spanish and Portuguese), James P. Piascik (German), Leslie Scherer (Curriculum and Instruction/Spanish and Portuguese), Kathy L. Schuh (Psychological and Quantitative Foundations), Carol Severino (Rhetoric), Helen Shen (Asian Languages and Literature), Roumyana Slabakova (Linguistics), Bruce H. Spencer (German), Ikuko Yusa (Asian Languages and Literature)
Graduate degree: Ph.D. in Second Language Acquisition
Web site: http://www.uiowa.edu/~nt/ACAD/flare/flarehome.html

Second language acquisition (SLA) is a multidisciplinary field whose goal is to understand the processes that underlie the learning of a non-native language. Second language acquisition draws from a variety of academic disciplines, among them linguistics, psychology, psycholinguistics, sociolinguistics, discourse analysis, conversation analysis, and education.

Doctor of Philosophy

Like the field itself, the Ph.D. degree in second language acquisition is interdisciplinary. Students interested in pursuing the Ph.D. must hold an M.A. in an appropriate field [e.g., linguistics, foreign language education, English as a second language], or they must have equivalent academic experience.

Doctoral students may specialize in one of three areas: linguistics, language program direction, or technology. Students may pursue their interdisciplinary interests in courses offered by the Departments of Asian Languages and Literature, French and Italian, German, Linguistics, Rhetoric, Spanish and Portuguese, and Speech Pathology and Audiology, and the Divisions of Curriculum and Instruction, and Psychological and Quantitative Foundations.
**Requirements**

The program requires 72 s.h., including a maximum of 33 s.h. earned in work toward the master's degree. The program is divided into foundation courses (13 courses, or 39 s.h.), specialization courses (5 courses, or 15 s.h.), and dissertation work (18 s.h.).

**Foundation Courses**

All of these:
- 164:201 Second Language Acquisition Research and Theory I 3 s.h.
- 164:202 Second Language Acquisition Research and Theory II 3 s.h.
- 164:211 Multimedia and Second Language Acquisition 3 s.h.

Two of these:
- 164:221 Topics in Second Language Acquisition: Speaking 3 s.h.
- 164:223 Topics in Second Language Acquisition: Listening 3 s.h.
- 164:227 Topics in Second Language Acquisition: Writing 3 s.h.
- 164:229 Cultural Curriculum 3 s.h.
- 07S:184 Reading in a Second Language or 07S:186 Reading in the Non-Roman Scripts 3 s.h.

To complete the foundation requirement, students select one course from each of the following eight areas, in consultation with their adviser. With the adviser's approval, courses not listed here may be used to fulfill the requirement.

**Curriculum**

- 07E:300 Design and Organization of Curriculum 3 s.h.
- 07S:186 Curriculum Foundations 2-3 s.h.
- 07S:197 Principles of Course Design for Second Language Instruction 3 s.h.
- 07S:208 Designing Materials for Second Language Instruction 3 s.h.

**Quantitative Research Tools**

- 07P:143 Introduction to Statistical Methods (recommended for students with no previous work in statistics) 3 s.h.
- 07P:220 Quantitative Educational Research Methodologies 3 s.h.
- 07P:243 Intermediate Statistical Methods 3 s.h.
- 07P:244 Correlation and Regression 4 s.h.
- 07P:246 Design of Experiments 4 s.h.

**Qualitative Research Tools**

- 07B:373 Qualitative Research Design and Methods 3 s.h.
- 07E:370 Methods in Literacy Research (qualitative studies in classroom settings) 3 s.h.
- 164:205 Analysis of L1 and L2 Data 3 s.h.

**Testing, Evaluation, Measurement**

- 07P:150 Introduction to Educational Measurement 3-4 s.h.
- 07P:165 Introduction to Program Evaluation 3 s.h.
- 07P:255 Construction and Use of Evaluation Instruments 3 s.h.
- 07P:257 Educational Measurement and Evaluation 3 s.h.

**Methodology**

- 035:200 Foreign Language Teaching Methods 3 s.h.
- 039:202 Teaching Chinese as a Foreign Language I: Theories and Research 3 s.h.
- 039:203 Teaching Chinese as a Foreign Language II: Curriculum, Methodology, and Assessment 3 s.h.
- 039:202 Japanese as a Foreign Language: Practical Applications 3 s.h.
- 103:145 Methods of Teaching English as a Second Language 3 s.h.

**Phonetics, Phonology**

- 013:258 Modern German Phonetics 3 s.h.
- 035:209 Spanish Phonology 3 s.h.
- 103:110 Articulatory and Acoustic Phonetics 3 s.h.
- 103:112 Phonological Analysis 3 s.h.
- 103:203 Introduction to Phonology 3 s.h.
- 103:204 Phonological Theory 3 s.h.
- 103:214 Advanced Phonological Theory 3 s.h.

**Morphology, Syntax**

- 013:256 Modern German Syntax 3 s.h.
- 013:257 Morphology 3 s.h.
- 035:186 Introduction to Spanish Syntax 3 s.h.
- 035:207 Topics in Comparative Romance Linguistics 3 s.h.
- 035:210 Spanish Syntax 3 s.h.
- 103:111 Syntactic Analysis 3 s.h.
- 103:201 Introduction to Syntax 3 s.h.
- 103:202 Syntactic Theory 3 s.h.
- 103:212 Advanced Syntactic Theory 3 s.h.

**Linguistics**

- 003:117 Psychology of Language 3 s.h.
- 003:218 Psycholinguistics 3 s.h.
- 103:141 The Structure of English 3 s.h.
- 103:147 Research Methods 3 s.h.
- 103:150 Language and Gender 3 s.h.
- 103:155 Morphology 3 s.h.
- 103:156 Linguistic Theory and Language Acquisition 3 s.h.
- 103:163 Philosophy of Language 3 s.h.
- 103:170 Language and Culture 3 s.h.
- 103:173 Generative Second Language Acquisition 3 s.h.
- 103:175 Introduction to Semantics 3 s.h.
- 103:176 Language Development 1-3 s.h.
- 103:177 Basic Neuroscience for Speech and Hearing 3 s.h.
- 103:212 Advanced Syntactic Theory 3 s.h.
- 103:216 Topics in Second Language Acquisition 3 s.h.
- 164:207 Sociolinguistics 3 s.h.

**Specialization Courses**

Each student selects one of three specialization areas—linguistics, language program direction, or technology—for further course work, taking five courses, for a total of 15 s.h., in the chosen area. An individually designed specialization may be developed in consultation with the adviser.

**Linguistics Specialization**

Requirements for the linguistics specialization are as follows.

One of the following three-course sequences (Group 1 or Group 2):

- **Group 1**
  - 103:203 Introduction to Phonology 3 s.h.
  - 103:204 Phonological Theory 3 s.h.
  - 103:214 Advanced Phonological Theory 3 s.h.

- **Group 2**
  - 103:201 Introduction to Syntax 4 s.h.
  - 103:202 Syntactic Theory 3 s.h.
  - 103:212 Advanced Syntactic Theory 3 s.h.

One of these:
- 103:173 Generative Second Language Acquisition 3 s.h.

An alternate course on linguistic theory and second language acquisition

**Language Program Direction Specialization**

Students who choose the language program direction specialization take five of the following courses (chosen from those not taken to satisfy the foundation requirements).

- 07S:202 Second Language Program Management 3 s.h.
- 07S:208 Designing Materials for Second Language Instruction 3 s.h.
- 035:205 Topics in Graduate Foreign Language Pedagogy 3 s.h.
- 39J:258 Second Language Acquisition of Japanese 3 s.h.
- 164:205 Analysis of L1 and L2 Data 3 s.h.
- 164:221 Topics in Second Language Acquisition: Speaking 3 s.h.
- 164:223 Topics in Second Language Acquisition: Listening 3 s.h.
- 164:226 Reading in the Non-Roman Scripts 3 s.h.
- 164:227 Topics in Second Language Acquisition: Writing 3 s.h.
- 164:229 Cultural Curriculum 3 s.h.

Some students may include an internship experience as part of the specialization.

**Technology Specialization**

Requirements for the technology specialization are as follows.

- 164:212 Practicum in CALL Software Development 1-4 s.h.
A three-course sequence in psychological and quantitative foundations:

- **07P:205 Design of Instruction** 3 s.h.
- **07P:208 Designing Educational Multimedia** 3 s.h.
- **07P:215 Web-Based Learning** 3 s.h.

Students choose their remaining specialization course work from the following (others may be approved by the student’s adviser):

- **07P:275 Constructivism and Design of Instruction** 3 s.h.
- **021:120 Design of Automated Systems** 3 s.h.
- **021:220 Programming for Text Manipulation** 3 s.h.
- **22C:104 A Practical Introduction to Computer Science** 3 s.h.
- **103:157 Electronic Corpora and Linguistic Analysis** 3 s.h.

**Thesis**

All candidates must complete a thesis (164:303 Ph.D. Thesis), for which they may earn up to 18 s.h.

**Optional Course Work**

Students may include the following optional course work in their degree programs.

- **164:300 Special Topics in Second Language Acquisition** arr.
- **164:301 Readings in Second Language Acquisition** arr.
- **164:302 Special Projects in Second Language Acquisition** arr.

**Financial Support**

Teaching assistantships are available through the Foreign Language Acquisition Research and Education Program (FLARE). These assistantships usually involve teaching elementary or intermediate language courses. FLARE also offers a limited number of research assistantships.

**Courses**

**164:201 Second Language Acquisition Research and Theory I** 3 s.h.

Theories regarding success and failure in acquisition of second or subsequent languages; research, issues. Same as 009:237, 035:201, 039:200, 103:237.

**164:202 Second Language Acquisition Research and Theory II** 3 s.h.

Continuation of 164:201. Prerequisite: 164:201 or consent of instructor. Same as 035:202, 039:201.

**164:205 Analysis of L1 and L2 Data** 3 s.h.

Issues in qualitative and quantitative analysis of first- and second-language data; data collection, analytical frameworks and approaches. Prerequisite: 164:201 or consent of instructor. Same as 039:205.

**164:207 Sociolinguistics** 3 s.h.

Topics such as discourse and conversation analysis, linguistic pragmatics, linguistic variations, issues of language and gender. Prerequisite: 103:100 or equivalent. Same as 039:207.

**164:211 Multimedia and Second Language Acquisition** 3 s.h.

Foreign language multimedia in the context of current second language acquisition theories and research; readings on interactivity, interface design, feedback, learner control, and acquisition of vocabulary, grammar, and culture; multimedia development project. Prerequisite: course in foreign language teaching methodology or consent of instructor. Same as 009:238, 013:233, 035:235.

**164:212 Practicum in CALL Software Development** 1-4 s.h.

Supervised experience in an applied setting involving development of computer-assisted language learning (CALL) software. Repeatable. Prerequisite: 164:211, faculty sponsor, and consent of instructor.

**164:221 Topics in Second Language Acquisition: Speaking** 3 s.h.

Theory, pedagogy, research, and assessment in second language speaking. Same as 039:236, 035:238.

**164:223 Topics in Second Language Acquisition: Listening** 3 s.h.

Theory, pedagogy, research, and assessment in second language listening. Same as 039:223.

**164:226 Reading in the Non-Roman Scripts** 3 s.h.

Theory and practice of reading in languages that use non-Roman alphabets, syllabary, logographic systems; reading in first- and second-language contexts; instructional and literacy development issues. Prerequisite: 07E:171 or 07P:270 or 07S:184 or equivalent. Same as 07S:207.

**164:227 Topics in Second Language Acquisition: Writing** 3 s.h.

Theory, pedagogy, research, and assessment in second language writing. Same as 010:275, 035:227.

**164:229 Cultural Curriculum** 3 s.h.

Same as 07S:209. arr.

**164:230 Internship**

Prerequisite: consent of instructor. arr.

**164:299 Special Topics in German Linguistics** 3 s.h.

Same as 013:299, 103:232.

**164:300 Special Topics in Second Language Acquisition**

Repeatable. Prerequisite: consent of instructor.

**164:301 Readings in Second Language Acquisition**

Repeatable. Prerequisite: consent of instructor.

**164:302 Special Projects in Second Language Acquisition**

Repeatable. Prerequisite: consent of instructor.

**164:303 Ph.D. Thesis**

arr.

**Translational Biomedicine**

**Chair:** Gary W. Humminghake (Internal Medicine)

**Executive Committee:** John Englhardt (Anatomy and Cell Biology/Internal Medicine), William Haynes (Internal Medicine), Val Sheffield (Pediatrics), James Torner (Epidemiology),

**Affiliated Faculty:**

- Francois M. Abboud (Internal Medicine/Physiology and Biophysics), Nancy C. Andreassen (Psychiatry), Michael A. Apicella (Microbiology), Gale A. Bishop (Microbiology/Internal Medicine), Joseph A. Buckwalter (Orthopaedics and Rehabilitation), Garry R. Buettner (Free Radical and Radiation Biology), Trudy L. Burns (Biostatistics), Kevin P. Campbell (Physiology and Biophysics), Michael A. Cohen (Pathology), Beverly L. Davidson (Internal Medicine), Robin L. Davison (Anatomy and Cell Biology), Gerald F. Gehrert (Pharmacology), Peter Greenberg (Microbiology), Gregory S. Hageman (Ophthalmology and Visual Sciences), Donald D. Heistad (Internal Medicine/Pharmacology), Mary L.C. Hendrix (Anatomy and Cell Biology), Eric A. Hoffman (Radiology/Biomedical Engineering), Matthew A. Howard III (Neurosurgery), Ronald M. Lauer (Pediatrics), Steven R. Lentz (Internal Medicine), Andrew J. Lotery (Ophthalmology and Visual Sciences), Charles F. Lynch (Epidemiology), Ailyn L. Mark (Internal Medicine), Paul B. McCray (Pediatrics), Geoffrey McLennan (Internal Medicine), Larry W. Oberley (Free Radical and Radiation Biology), M. Sue O’Dorisio (Pediatrics), Henry L. Paulson (Neurology), Stanley Perlman (Pediatrics/Microbiology), Timothy L. Ratliff (Urology), Andrew F. Russo (Physiology and Biophysics), D. Michael Shaddy (Internal Medicine), Curt D. Sigmund (Internal Medicine/Physiology and Biophysics), Richard J.H. Smith (Otolaryngology), M. Bento Soares (Pediatrics/Biochemistry), Richard D. Sostheim (Dermatology), Arthur A. Spector (Biochemistry/Internal Medicine), Jack T. Stapleton (Internal Medicine), John B. Stokes, III (Internal Medicine), Edwin M. Stone (Ophthalmology and Visual Sciences), William T. Talman (Neurology), James C. Torner (Epidemiology), Veronica Veland (Biostatistics/Psychiatry), Robert B. Wallace (Epidemiology/Internal Medicine), George J. Weiner (Internal Medicine), Joel V. Weinstock (Internal Medicine), Jerrold F. Weiss (Internal Medicine), Michael J. Welsh (Internal Medicine/Physiology and Biophysics), Mary E. Wilson (Internal Medicine/Microbiology), Joseph Zabner (Internal Medicine)

**Graduate Degrees:** M.S., Ph.D. in Translational Biomedicine

**Web Site:** [http://www.medicine.uiowa.edu/gptbr/index.htm](http://www.medicine.uiowa.edu/gptbr/index.htm)

The Translational Biomedicine Program prepares skilled clinicians to pursue new knowledge about health and disease through patient-based research. The program's goal is to support the medical research enterprise in its efforts to advance the prevention, treatment, and cure of disease.

Students in the program are trained to conduct rigorous, original clinical investigations using basic biological and physiological principles. They receive didactic training and engage in substantial mentored research opportunities in the areas of disease mechanisms, or etiology; new clinical insights into diagnosis or natural history of disease; objective assessment and outcome of therapeutic intervention; medical informatics; and development of new approaches to therapeutics.

**Master of Science**

The Graduate College requires 36 s.h. for the Master of Science degree. However, program course work and research requirements over a three-year span are equivalent to 60 s.h. Each student’s plan of study is based on his or her chosen discipline. All students take background courses in epidemiology, study design, and statistics as well as advanced courses in basic sciences relevant to their individual research areas.

Students also must write a proposal for a K23 Mentored Patient-Oriented Research Career Development Award from the National Institutes of Health. For M.S. candidates, the K23 proposal replaces the thesis. A draft of the K23 proposal must pass an internal review by the end of the student’s second year.
Students may choose to pursue research areas in any of the health sciences disciplines, and they enjoy considerable flexibility in scheduling course work and beginning research. The following courses are required.

- **050:224 Seminar in Translational Biomedicine** (required of all students each semester of the program) 1 s.h.
- **050:225 Translational Biomedical Research** (required of all students throughout the program) arr.
- **050:270 Responsible Conduct in Research** 0 s.h.
- **171:161 Introduction to Biostatistics** 3 s.h.
- **171:162 Design and Analysis of Biomedical Studies** 3 s.h.
- **173:140 Epidemiology I: Principles** 3 s.h.
- Students select electives such as these.

**SAMPLE SCHEDULE**

**First Semester**
- **050:224 Seminar in Translational Biomedicine** 1 s.h.
- **050:270 Responsible Conduct in Research** 0 s.h.
- **074:191 Health Informatics I** 3 s.h.
- **173:140 Epidemiology I: Principles** 3 s.h.

**Second Semester**
- **050:224 Seminar in Translational Biomedicine** 1 s.h.
- **050:225 Translational Biomedical Research** arr.
- **142:215 Molecular Biology of Gene Expression** 3 s.h.
- **171:161 Introduction to Biostatistics** 3 s.h.
- **171:162 Design and Analysis of Biomedical Studies** 3 s.h.

**Third and Following Semesters**
- **050:224 Seminar in Translational Biomedicine** 1 s.h.
- **050:225 Translational Biomedical Research** arr.

**Doctor of Philosophy**

For information about the Ph.D. program, contact the Translational Biomedicine Program.

**Admission**

The Translational Biomedicine Program welcomes students with diverse educational and scientific backgrounds and varied research interests. Applicants to the program should have an advanced degree in one of the health sciences and medicine. They should hold an undergraduate degree in a science profession and knowledge of basic science. Applicants should have some interest in translational biomedicine work and beginning research. The following courses are required.

- **050:224 Seminar in Translational Biomedicine** (required of all students each semester of the program) 1 s.h.
- **050:225 Translational Biomedical Research** (required of all students throughout the program) arr.
- **050:270 Responsible Conduct in Research** 0 s.h.
- **171:161 Introduction to Biostatistics** 3 s.h.
- **171:162 Design and Analysis of Biomedical Studies** 3 s.h.
- **173:140 Epidemiology I: Principles** 3 s.h.
- Students select electives such as these.

**Financial Support**

Funding of tuition or salaries or stipends is available from a number of sources. Contact the program’s office for information.

**Facilities**

Training is conducted in the laboratories and teaching facilities of the Carver College of Medicine and the College of Public Health. The University of Iowa General Clinical Research Center is available for research training. The program also links to the Carver College of Medicine’s graduate training program in clinical research.

**Associated Courses**

- **050:224 Seminar in Translational Biomedicine** 1 s.h.
- **050:225 Translational Biomedical Research** arr.

**TRANSPORTATION STUDIES**

**Director:** David J. Forkenbrock
**Affiliated faculty:**
- M. Aghar Bhatti (Civil and Environmental Engineering)
- David J. Forkenbrock (Urban and Regional Planning/Civil and Environmental Engineering)
- John W. Fuller (Urban and Regional Planning/Economics)
- Paul F. Hanley (Civil and Regional Planning)
- David Lee (Civil and Environmental Engineering)
- John D. Lee (Mechanical and Industrial Engineering)
- Wilfrid A. Nixon (Civil and Environmental Engineering)
- Gerard Rushton (Geography/Health Management and Policy)
- Thomai Schnell (Mechanical and Industrial Engineering)
- James W. Stoner (Urban and Regional Planning)

**Graduate nondegree program:** certificate in Transportation Studies
**Web site:** http://ppc.uiowa.edu

Transportation is vital to modern society. The United States, like other nations, faces many critical transportation problems and issues. The highway system is reaching an advanced stage of its life cycle, public transit operating deficits are growing, the quality of transportation available to many citizens is unacceptably low, serious inequities exist between transportation modes, and extensive changes are called for in traditional transportation institutions.

Transportation engineers and planners draw on a number of skills to respond to the challenges they face. They must analyze and forecast the movement of people and goods within and between cities; identify effective and efficient means for providing desired transportation services; price these services properly; and evaluate the impact that transportation changes have on land use, environmental quality, the local or regional economy, and various subgroups within society.

**Certificate**

No single academic discipline can supply all of the theories, principles, or methods needed to address the varied and complex problems in transportation. Recognizing this, two academic units at The University of Iowa participate in an interdisciplinary transportation program. The Department of Civil and Environmental Engineering and the Graduate Program in Urban and Regional Planning offer a graduate certificate program that enables students in these academic units to obtain an additional credential along with their graduate degrees.

The Department of Geography also supports the transportation certificate program by offering courses in geographic information systems (GIS), location theory, and other related areas.

The Transportation Certificate Program is coordinated by the Public Policy Center in conjunction with the Graduate College. Completion of the requirements for a certificate is documented on the student’s transcript. The certificate is awarded in conjunction with the established degree requirements of the individual academic units, as described in this section of the Catalog.

Students who enroll in a course of study leading to a certificate also may wish to participate in faculty-led research in transportation, which may explore such topics as system planning, traffic operations and engineering, spatial data systems and analysis, simulation applications, and policy issues.

**Certificate With Graduate Degrees in Civil and Environmental Engineering**

The Department of Civil and Environmental Engineering offers degrees in transportation at both the Master of Science and Doctor of Philosophy levels. The M.S. may be earned either with a thesis (a 30 s.h. program that includes up to 6 s.h. of credit for thesis research) or without a thesis (requires a minimum of 30 s.h. of credit). Nonthesis students usually are required to complete a research paper based on independent study and to defend the paper in an oral examination.

Students who wish to complete the M.S. in a single academic year must complete 15 s.h. during both the fall and spring semesters. The Ph.D. degree involves a minimum of 72 s.h. beyond the B.S. degree, with up to 18 s.h. earned for dissertation research. A minimum of one year of campus residency is required. For detailed information on the residency requirement, see section XII.C of Rules and Regulations of the Graduate College, in the Graduate College section of the Catalog.
Individuals with degrees in transportation-related disciplines as well as in civil engineering are encouraged to apply to the transportation studies certificate program. Depending on the student's background, additional course work in statistics, computer programming, simulation, mathematics, and operations research may be required. However, the credit earned in these courses may not be applicable to the degree program.

The following courses are required:

Six courses in transportation:

- 053:162 Design of Transportation Systems 3 s.h.
- 053:163 Traffic Engineering 3 s.h.
- 053:165 Pavement Analysis and Design 3 s.h.
- 053:166 Infrastructure Management System 3 s.h.
- 053:262 Transportation Demand Analysis 3 s.h.
- 102:267 Transportation Policy Analysis 3 s.h.

One general core course:

- 053:115 Computer-Aided Engineering 3 s.h.

A typical master's certificate program in civil and environmental engineering includes the following courses.

First Semester

- 053:115 Computer-Aided Engineering 3 s.h.
- 053:162 Design of Transportation Systems 3 s.h.
- 053:166 Infrastructure Management System 3 s.h.
- 102:269 Transportation Program Seminar 1 s.h.

Second Semester

- 053:163 Traffic Engineering 3 s.h.
- 053:165 Pavement Analysis and Design 3 s.h.
- 053:199 Research: Civil and Environmental Engineering, M.S. Thesis arr. 9 s.h.
- 053:262 Transportation Demand Analysis 3 s.h.
- Technical elective 3 s.h.

Third Semester

- 053:199 Research: Civil and Environmental Engineering, M.S. Thesis arr. 9 s.h.
- 102:267 Transportation Policy Analysis 3 s.h.
- Technical electives 6 s.h.

Technical electives are advanced courses in engineering operations research, information technology computer-aided design, urban and regional planning, business, or economics. Specific course requirements are sufficiently flexible to conform to a student’s graduation schedule and area of specialization.

Technical electives include the following:

- 053:133 Finite Element I 3 s.h.
- 053:164 Winter Highway Maintenance 3 s.h.
- 053:267 Transportation Network Analysis 3 s.h.

Applications should be made through the Graduate College and the Department of Civil and Environmental Engineering.

Certificate With Graduate Degrees in Urban and Regional Planning

The Graduate Program in Urban and Regional Planning offers Master of Arts and Master of Science degrees with a transportation concentration. During the first year, students complete an integrated core curriculum consisting of courses in planning economics and public finance, analytic methods, planning theory, and law. Beginning in the second semester, students take courses in an area of concentration, such as transportation, where core concepts are applied to a selected specialization.

The planning curriculum is intended to provide students with the capability to examine policy in transportation, devise workable options, evaluate these options, and work toward the implementation of policy solutions.

Planning students complete a total of 50 s.h.; the core accounts for 20 s.h., the area of concentration constitutes a minimum of 9 s.h., and electives are taken to complete the remaining hours. Students who select the thesis option may register for up to 6 s.h. of thesis credit and 8 s.h. of readings. Students may apply 3 s.h. of readings to the area of concentration requirement and substitute the thesis for the portfolio.

A typical transportation major program in urban and regional planning includes the following courses:

First Semester

- 102:200 Analytic Methods in Planning I 3 s.h.
- 102:202 Land Use Planning: Law and Practice 4 s.h.
- 102:203 History and Theories of Planning 3 s.h.
- 102:205 Economics for Policy Analysis 3 s.h.
- 102:208 Program Seminar in Planning Practice 1 s.h.

Second Semester

- 102:201 Analytic Methods in Planning II 2 s.h.
- 102:260 Transportation Policy and Planning 2 s.h.
- Planning elective 4-5 s.h.

Third Semester

- 102:209 Field Problems in Planning I 1 s.h.
- 102:265 Transportation Regulation and Finance 3 s.h.
- 102:267 Transportation Policy Analysis 3 s.h.
- 102:269 Transportation Program Seminar 1 s.h.

Fourth Semester

- 102:210 Field Problems in Planning II 3 s.h.
- 102:262 Transportation Demand Analysis 3 s.h.

Two of these:

- 053:267 Transportation Network Analysis 3 s.h.
- 102:263 Applied Simulation to Transportation 3 s.h.
- 102:264 Transportation Planning Process Planning elective 3 s.h.

Students select optional transportation courses according to their individual interests. Elective courses typically include the following:

- 102:295 Economic Development Policy 3 s.h.

Applications should be made through the Graduate College and the Graduate Program in Urban and Regional Planning.

Urban and Regional Planning

Chair: Alan H. Peters
Professors: Peter S. Fisher, David J. Forkenbrock, John W. Fuller, Alan H. Peters, James A. Throgmorton
Associate professors: Heather I. MacDonald, James W. Stoner
Assistant professors: Jerry A. Anthony, Paul F. Hanley, Lucie Lautran
Adjunct lecturers: Douglas Boothroyd, David Swenson, John Yapp
Graduate degrees: M.A., M.S. in Urban and Regional Planning
Website: http://www.uiowa.edu/~urp

Urban and regional planning is a dynamic and exciting field encompassing the development and implementation of public policies that improve the quality of life in cities and regions. Today’s planners find themselves in demand for such diverse jobs as transport planner, zoning administrator, environmental analyst with a natural resources agency, economic development planner, regional solid waste management coordinator, state public health planner, neighborhood planner, state legislative analyst, and transportation consultant.

The University of Iowa planning program is a two-year master's program fully accredited by the Planning Accreditation Board. The program is built on the premise that planners must be educated in methods of policy analysis and that there is a common body of knowledge, represented in the core curriculum, that provides a solid foundation for all specializations in the field.

A wide range of educational backgrounds provide good preparation for graduate study in urban and regional planning. Students with undergraduate majors such as geography, economics, English, political science, engineering, architecture, sociology, urban studies, and history currently study in the program. Usually up to 50 full-time and a few part-time students are enrolled. About half of them are women, and about 10 percent are international students.

The common core of courses and the design of the facilities allow students to get to know each other quickly. Students interact closely with faculty members in the classroom, in informal conversation, and while working on research projects.

Recent graduates of the program have taken positions with city, metropolitan, and regional planning agencies, state and federal government, nonprofit organizations, and private consulting firms. They work in all geographic regions of the United States and in several countries around the world.

Master's Degrees

The planning curriculum is a two-year program that leads to a Master of Science or a Master of Arts in Urban and Regional Planning. It consists of 50 s.h., including 20 s.h. of core courses,
9 s.h. of courses in an area of concentration, and 21 s.h. of electives. Students may earn 2 s.h. for completion of an approved internship with a planning agency during summer or the academic year.

All students, including those in joint degree programs, must complete a minimum of 35 s.h. of planning courses (prefix 102). Up to 15 s.h. of course work from other departments can be counted toward the planning degree. All core and area-of-concentration courses must be completed with a grade of B- or higher, and students must attain an overall graduate g.p.a. of at least 3.00.

The curriculum is based on the philosophy that planners must develop the theoretical and analytic skills that will permit them to analyze social problems and evaluate public policies. Planners also must cultivate professional skills such as report writing, oral presentation, computer use, and team management in order to work effectively in various organizational and political environments.

**CORE CURRICULUM**

The core curriculum helps students develop an understanding of the institutions—social, economic, political, administrative, and legal systems—that provide the context for policy analysis and constrain public choices. It also promotes development of the ability to identify social goals and normative criteria for evaluating public policies, as well as the analytic skills to perform such investigations. In total, the core accounts for 20 s.h. (14 s.h. in the first fall semester, 2 s.h. in the spring semester, and 4 s.h. in the second year).

Courses in the first semester are drawn primarily from traditional disciplines, particularly economics and statistics, together with an introduction to theories and practice of planning and to land use planning. As students proceed through the curriculum, increasing emphasis is placed on the development of critical judgment and insight, achieved through the application of theory and methods to realistic planning problems and case studies.

Core curriculum courses and required semester hours are noted in the typical class schedule that follows. Students may request a waiver of selected core courses on the basis of previous course work.

**First Semester**

102:200 Analytic Methods in Planning 1 s.h.
102:202 Land Use Planning: Law and Practice 4 s.h.
102:203 History and Theories of Planning 3 s.h.
102:205 Economics for Policy Analysis 3 s.h.
102:208 Program Seminar in Planning Practice 1 s.h.

**Second Semester**

102:201 Analytic Methods in Planning II 2 s.h.
Electives and area of concentration courses 10 s.h.

**Third Semester**

102:209 Field Problems in Planning I 1 s.h.
Electives and area of concentration courses 9 s.h.
Internship 2 s.h.

**Fourth Semester**

102:210 Field Problems in Planning II 3 s.h.
Electives and area of concentration courses 9 s.h.

**AREA OF CONCENTRATION**

Beginning in the second semester of the program, students develop an area of concentration by applying the concepts and skills developed in the core to a specific field of planning. Currently, there are four areas of concentration supported by faculty and course offerings in the planning program: transportation planning, housing and community development, economic development, and land use and environmental planning.

Students complete at least 9 s.h. of courses in their area of concentration. Courses offered by other University departments may supplement those offered by the planning program.

Students may combine two areas of concentration. Examples of combined areas are environmental and economic development planning, and transportation and community development planning. Students also may design other areas of concentration, subject to faculty approval. For example, students can specialize in health services planning with appropriate course work in the Departments of Health Management and Policy or Occupational and Environmental Health, or in human services planning with courses in the School of Social Work.

**PORTFOLIO**

Students must complete a portfolio of papers that are approved by the final exam committee.

**Options**

**THESIS**

A thesis is not required, although students may petition to write one. Students may register for up to 6 s.h. of thesis credit. In addition, they may take up to 8 s.h. of readings to develop a thesis topic and prepare a literature review. Students may apply 3 s.h. of readings to the area of concentration requirement and substitute the thesis for the portfolio.

**INTERNSHIP**

Students are encouraged to complete an internship in a planning agency or related organization. To earn 2 s.h. of credit for the internship, students must submit a brief paper summarizing and evaluating their experience. Internships usually are paid staff positions and are completed during the summer between the first and second years or during the academic year.

**PRACTICUM**

An extended internship, consisting of at least five months of full-time employment in a planning-related organization, may qualify as a practicum. A practicum generally takes place during the summer and into the fall semester of the second year. It carries 5 s.h. of credit and substitutes for the required field problems courses, 102:209 and 102:210, and the internship.

**Joint Programs**

**Civil and Environmental Engineering**

Students pursuing a B.S. degree in civil and environmental engineering may apply for admission to the joint program with urban and regional planning, beginning in their junior year. Graduates of the joint program with engineering have technical skills and an understanding of policy development and implementation, a combination of skills that prepares them for employment as public works directors, city engineers, transportation engineers, or in public utilities.

The B.S. in engineering requires 138 s.h. The joint program reduces the total semester hours required for both degrees from 178 to 152. Students earn 117 s.h. in engineering courses and 35 s.h. in graduate planning courses. In their junior year they begin taking required and elective planning courses that count toward the secondary area of focus requirement for the B.S. in engineering.

**Law**

The Urban and Regional Planning Program and the College of Law cooperate in administering a program that satisfies the degree requirements leading to an M.A. in planning and a J.D. in law. The program usually requires four years to complete, a reduction of one academic year from the total requirements of the two programs taken separately. It may be completed in less time if the student chooses the accelerated law program. Separate admission to each academic unit is required.

Law is the most popular of the joint degree programs. Students in the planning and law program typically seek employment as attorneys, especially in law firms that specialize in land use or environmental law; as city managers; as city planners or planning administrators; or in advocacy organizations.

**Health Management and Policy**

Students interested in health planning may wish to enroll in a joint master’s degree program offered by the Urban and Regional Planning Program and the department of Health Management and Policy in the College of Public Health. This three-year program leads to an M.A. in planning and an M.H.A. (Master of Health Administration). Completing the joint program takes one year less than separate completion of the two programs. Separate admission to each academic unit is required.

The health management and policy degree enables students to strengthen their credentials as health planners or expand their job options to include administrative positions in the health field as well as health planning jobs. Graduates of the joint degree program typically find employment in hospitals, state departments of health, and other private, nonprofit, or public health agencies.
Occupational and Environmental Health

Students interested in environmental health may elect to pursue a joint master's degree offered by the Urban and Regional Planning Program and the College of Public Health. This option results in an M.A. in planning and an M.S. in occupational and environmental health. The joint program requires 65 s.h. of credit, including 35 s.h. earned in urban and regional planning and 30 s.h. earned in environmental health. The program can be completed in five semesters. Separate admission to each academic unit is required.

Graduates of the program typically find employment in the public health field, with state health and human services departments, or as health or environmental planners.

Social Work

For those interested in a career in social service delivery or human services planning, a joint program is offered by urban and regional planning and the School of Social Work, leading to an M.A. in planning and an M.S.W. in social work. It is possible to complete the program in three years, although some students may require an additional semester. Separate admission to each academic unit is required. Graduates of this joint program find careers as human services planners for local planning agencies, nonprofit social service agencies, and state governments.

Transportation

The Transportation Studies Program is administered through the University's Public Policy Center. A transportation certificate is awarded to students who satisfactorily complete a prescribed set of courses in transportation. These courses are taught in urban and regional planning, engineering, and economics. The certificate program allows planning students with a concentration in transportation to extend their training and obtain an additional credential. For more information, see “Transportation Studies” in the Catalog.

Admission

Admission to the Urban and Regional Planning Program is open to students from any undergraduate major or area of concentration. Admission is based on Graduate Record Examination (GRE) General Test scores (verbal, quantitative, and analytical writing), letters of recommendation, previous academic performance, and a written statement of purpose. International students are also required to submit official TOEFL scores.

Applicants should submit the application form, GRE General Test scores, TOEFL score (for international students), recommendation letters, statement of purpose, and transcripts early in the year for fall admission (preferably by January 15), although applications are still accepted until July 15 (April 15 for international students). Materials should be received by October 1 and no later than December 1 for spring admission.

Fall admission is strongly preferred. Students applying for financial aid should submit their materials by January 15.

Financial Support

Students in the Urban and Regional Planning Program receive financial support from the program primarily in the form of teaching or research assistantships and contract or grant-funded assistantships. Assistantships typically require 10 hours of work per week, under the direction of a faculty member. A few full or partial tuition scholarships also are available.

Students initiate applications for financial support, and awards are made on the basis of merit, experience, and interests. Assistantships may be renewed for up to a total of four semesters. The planning program has been successful in providing support to the majority of its students.

Students applying for financial support are encouraged to submit application materials and requests for support by January 15. Students who apply after that date are considered only as remaining funds permit. Financial support usually is not available for students beginning the program in the spring semester.

Admission is based on Graduate Record Examination (GRE) General Test scores, competitive internship experience, professional activities, potential to conduct high-quality research, qualities which will enhance the research atmosphere of the department, and preparation for advanced work in planning. Assistantships in the College of Public Health are available to qualified and eligible students. The planning program has been successful in providing support to the majority of its students.

Students initiate applications for financial support, and awards are made on the basis of merit, experience, and interests. Assistantships may be renewed for up to a total of four semesters. The planning program has been successful in providing support to the majority of its students.

Courses

102:055 The Splendor of Cities 3 s.h.
Evolution of city structure in response to social, cultural, political, and economic forces; cities through time and across continents; varied resource materials, including video, novels, texts. Same as 033.056.

102:101 Planning Liveable Cities 3 s.h.
Development of livable cities in the United States; economic, physical, environmental, and political forces that shape their growth; impact of planning, how it shapes the future of cities. Same as 044.136.

102:112 The City: Narrative and Design 3 s.h.
History, culture, and built environment of a major city (e.g., Berlin, Germany); how storytelling and city building interact to create the city as it currently exists and as it might exist in the future; films, novels, physical plans, histories, social science texts. Same as 033.112.

102:125 Environmental Impact Analysis 4 s.h.
Fundamental concepts underlying measurement, measurement, and evaluation of environmental impacts; case studies in cost-benefit analysis, risk assessment, resource allocation, social impact assessment, public participation, management information systems, field trips to environmental control facilities. Same as 044.123.

102:133 Introduction to Economics of Transportation 3 s.h.
Overview of transportation markets—intercity, rural, urban; transportation modes—rail, highway, air, water, pipeline, transit; issues in freight, public policy, planning, management, physical distribution, and environmental, economic, and safety regulation. Same as 068.143, 044.133.

102:158 Storytelling and Urban Engagement 3 s.h.
Storytelling and urban planning, hands-on interaction with neighborhoods in Iowa City. Same as 008.158, 045.163.

102:200 Analytic Methods in Planning I 1-3 s.h.
Methods used in planning and policy analysis; emphasis on application of statistical techniques and quantitative reasoning to planning problems; use of computers and data systems in planning analysis.

102:201 Analytic Methods in Planning II 2-3 s.h.
Integration of multiple regression, population estimation and projection, survey methods, time-series analysis, industrial growth and change; presentation of results to decision makers and the public.

102:202 Land Use Planning: Law and Practice 4 s.h.
Legal, social foundations of land use planning; comprehensive planning, zoning and subdivision review; legal aspects of land use, environmental planning, ordinance drafting; staff report writing; citizen participation.

102:203 History and Theories of Planning 3 s.h.
History of urban planning in America as a reflection of social and economic forces; alternative planning philosophies, roles, and ethical choices open to planners.

102:205 Economics for Policy Analysis 1-3 s.h.
Principles of economics for planners; concepts and techniques of microeconomic analysis; income inequality; the role of government in the economy; tax and pricing policy; project evaluation; externalities.

102:208 Program Seminar in Planning Practice 1 s.h.
Planning process, roles of planners, professional ethics and standards. Repeatable.

102:209 Field Problems in Planning I 1 s.h.
Experience working on a two-semester project involving a current planning issue, usually for a client. Prerequisite: graduate standing in urban and regional planning.

102:210 Field Problems in Planning II 3 s.h.
Continuation of 102:209. Prerequisites: 102:209 and graduate standing in urban and regional planning.

102:214 Land Use Policy and Planning 3 s.h.
Environmental preservation, zoning, land use planning, downtown revitalization, historic preservation, brownfields.

102:215 Applied GIS for Planners 2 s.h.
Spatial matrices, routing, network flows, partitioning and clustering, facility location models; three-dimensional GIS analysis; statistical analysis in spatial context. Prerequisite: consent of instructor.

102:216 Conflict, Negotiation, and Planning 3 s.h.
Conflict within communities, and planners’ responses; networking, negotiating, mediation, coalition building, consensus building, case studies, role playing. Prerequisite: 102.205 or consent of instructor. Same as 160.216.

102:217 Spatial Analysis in Planning 2-3 s.h.
Data bases, GIS, planning support systems; spatial modeling and use of spatial statistics; applications to substantive problems in transportation, environment, housing, economic development. Prerequisite: 102.215 or consent of instructor.

102:218 Applied GIS 1 s.h.
Development, maintenance, and operation of an enterprise-wide Geographic Information System (GIS); implementation of a parcel-based data system model common to government entities; practical experience using data for land-use planning analysis. Prerequisite: consent of instructor.

102:219 Practicum 5 s.h.
Qualified full-time internship of at least five months with a planning-related organization. Prerequisite: graduate standing in urban and regional planning.

102:220 Virtual Reality and Urban Development 2 s.h.
Creation of terrain models from DEMs and CAD-based site plans; panoramas, incorporation of existing and proposed buildings into virtual reality models; use of VRML and presentation strategies, including digital movies. Pre-requisite: 021.215.

102:221 Poverty, Planning and Public Policy 3 s.h.
Who and where the poor are in the United States; consequences of poverty; competing explanations of poverty; historical survey and critique of antipoverty policies at federal, state, and city levels; roles of urban development policies. Prerequisites: 102.200, 102.203, and 102.205; or consent of instructor.

102:223 Financing Local Government 3 s.h.
Financing of local government services through property taxes, bonding, impact fees, pricing, tax increment financing, institutional alternatives—downtown improvement districts, special districts, homeowners’ associations; fiscal disparities and regional finance, case studies. Prerequisite: 102.205 or consent of instructor.

102:225 Social Equity Planning 2 s.h.

102:230 Land Use Administration 1 s.h.
Process of administering zoning and other land use regulations at the local government level; personnel, management, enforcement issues.

102:233 The Land Development Process 2-3 s.h.
How land is developed; analysis of site suitability, preparation of subdivision plan, site plan review; development approval process, infrastructure and site preparation, negotiating local development politics; field trips. Prerequisite: 102.202 or consent of instructor.
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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tr>
<td>102:235</td>
<td>Growth Management</td>
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<td>Causes and consequences of urban sprawl, shortfalls</td>
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<td>in conventional land use planning, local and state</td>
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<td>growth management policies, techniques of policy</td>
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<td>implementation, positive and negative impacts of</td>
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<td>such policies; Smart Growth; emerging challenges.</td>
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<td>Prerequisite: 102:202.</td>
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<td>102:240</td>
<td>Environmental Processes and Institutions</td>
<td>1-3 s.h.</td>
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<td>Natural and engineered environmental processes</td>
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<td>and institutions within the United States,</td>
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<td>physical, chemical, and biological processes</td>
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<td>associated with pollution control systems for land,</td>
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<td>water, and air; environmental institutions—past</td>
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<td>and present structure, their efforts to reduce</td>
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<td>environmental pollution through political and legal</td>
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<td>102:242</td>
<td>Urban Environmental Planning and Politics</td>
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<td>Understanding, improving the practice of urban</td>
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<td>planning drinking water supply, sewage treatment,</td>
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<td>102:245</td>
<td>Special Topics in Environmental Planning</td>
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<td>102:246</td>
<td>Environmental Policy</td>
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<td>Environmental policy formation and politics;</td>
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<td>United States’ experience.</td>
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<td>Prerequisite: consent of instructor.</td>
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<td>102:260</td>
<td>Transportation Policy and Planning</td>
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<td>Institutional setting for transportation planning,</td>
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<td>102:262</td>
<td>Transportation Demand Analysis</td>
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<td>City planning procedures and traffic engineering</td>
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<td>techniques applied to transportation problems;</td>
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<td>trip generation, distribution, assignment, mode</td>
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<td>choice models; travel surveys, data collection</td>
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<td>techniques; arterial flow, intersection</td>
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<td>performance, parking, transit system analysis.</td>
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<td>102:263</td>
<td>Applied Simulation to Transportation</td>
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<td>Transportation Planning Process</td>
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<td>policies, including privatization, tolls, impact</td>
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<td>fees. Same as 044:265.</td>
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<td>Transportation Policy Analysis</td>
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<td>in transportation planning and policy; facility</td>
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<td>investment analysis, pricing public services,</td>
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<td>Transportation Program Seminar</td>
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<td>government policy issues at the federal, state,</td>
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<td>and local levels. Repeatable.</td>
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<td>102:271</td>
<td>Housing Policy</td>
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<td>Recent housing policy initiatives at the federal,</td>
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<td>Community Development</td>
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<td>Community Development Corporation involvement in</td>
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<td>housing and neighborhood revitalization, ninth</td>
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<td>housing development and preservation;</td>
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<td>comprehensive community development initiatives.</td>
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<td>102:275</td>
<td>Development Policy and Planning in the Third</td>
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<td>World Cross-cultural and interdisciplinary analysis</td>
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<td>of problems associated with urbanization and</td>
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<td>development in Third World countries. Same as</td>
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<td>102:277</td>
<td>Affordable Housing Finance</td>
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<td>affordable housing; low-income housing tax credits</td>
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<td>the housing finance system and current regulatory</td>
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<td>issues, mortgage discrimination, improving</td>
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<td>financing for rental housing.</td>
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<td>102:290</td>
<td>Economic Impact Assessment</td>
<td>2-3 s.h.</td>
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<tr>
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<td>Economic impact and growth analysis, including</td>
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<td>economic base, income expenditure, input-output</td>
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<td>analysis; use of economic impact analysis in a</td>
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<td>cost-benefit context; industrial location and</td>
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<td>mobility theory with statistics applications.</td>
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<td>Prerequisite: 102:205 or consent of instructor.</td>
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<td>102:295</td>
<td>Economic Development Policy</td>
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<td></td>
<td>Analysis of policies and programs at the national,</td>
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<td>regional, state, and local levels that address</td>
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<td>problems of economic growth, development, decline.</td>
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<td>Prerequisite: consent of instructor.</td>
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<td>102:297</td>
<td>Community Development Finance</td>
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<td>Financial statements and small business finance;</td>
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<td>evaluation of loan proposals; community</td>
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<td>development agency financing of commercial</td>
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<td>redevelopment; case studies of community</td>
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<td>Prerequisite: 102:295 or consent of instructor.</td>
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<td>Special Topics in Planning</td>
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<td>problem; opportunity for student to apply</td>
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<td>knowledge in area of specialization.</td>
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<td>102:335</td>
<td>Internship</td>
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<td>Work in a planning or related agency or</td>
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<td>nonprofit organization.</td>
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<td>Prerequisite: consent of instructor.</td>
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</table>
Dean: Carolyn C. Jones
Associate deans: Eric G. Andersen, Arthur E. Bonfield, Marcella David, Linda A. McGuire, John C. Reitz

Executive librarian: Mary Ann Nelson

Professors: Eric G. Andersen, David C. Baldus (Joe B. Tye Professor), Patrick B. Bauer, Randall P. Bezanson (Charles M. and Marion Kernekait Professor), Arthur E. Bonfield (Allan D. Vestal Professor), Willard L. Boyd (Rawlings-Miller Professor), Margaret Bring (William G. Hammond Professor), Steven J. Burton (John F. Murray Professor), William C. Bus (O.K. Patton Professor), Patricia A. Cain (Albritt Family Professor), Jonathan C. Carlson, Enrique R. Carrasco, Marcella David, Ann Estin, Josephine Gittler (Wiley B. Rutledge Professor), N. William Hines Jr. (Joseph F. Rosenfeld Professor), Herbert J. Hovenkamp (Ben and Dorothy Willie Professor), Mark Janis, Carolyn C. Jones, Kenneth J. Kress, Shelly F. Kurtz (Percy Bordwell Professor), Marc Linder, Jean C. Love (Martha Ellen Tye Professor), Mark L. Osiel, Todd Pettys, Margaret Raymond, John C. Reitz (Edward L. Carnsody Professor), Hillary A. Sale, Peggie R. Smith, Alexander Somek, John-Mark Stensvag (Charlotte and Fred Hubbell Professor), James J. Tomkovicz (Edward A. Howry Professor), Lea S. VanderVelde (Josephine R. Witte Professor), Larry D. Ward (Orville and Ermina Dijkstra Professor), Gerald B. Werltuer, Adrien Wing (Bessie Dutton Murray Professor)

Clinical professors: Patricia Acton, John S. Allen, Lois K. Cox, Reta Noblett-Feld, Leonard Sandler, Barbara A. Schwartz, John Whinston

Associate professors: Stephanos Bibas, Christina Bohannon, Jill R. Gaudlin, Barry D. Matsumoto, Wendie Schneider, Mark Sidel, Ethan G. Stone, Tung Yin


Degrees: J.D., LL.M.

Web site: http://www.law.uiowa.edu
The University of Iowa College of Law, founded in 1865, is the oldest law school in continuous operation west of the Mississippi River. More than 750 students and a full-time faculty of 50 are engaged at the college in a cooperative study of law, legal institutions, professional ethics, the role of law in public policy matters, and the intersection of law and other disciplines.

The college's student/faculty ratio of 11 to 1 is one of the best in American legal education. Seven members of the law faculty hold Ph.D. degrees in law-related disciplines.

Through traditional Socratic classes, research seminars, closely supervised writing exercises, ambitious professional skills training programs, and clinical experiences, the college seeks to produce public-spirited leaders who will be rigorous thinkers, trusted advisers, forceful advocates, creative policy makers, and innovative scholars.

The college conducts its programs in the Boyd Law Building, a 200,000-square-foot facility that opened in 1986. Its spacious library, three courtrooms, clinic suite, building-wide audiovisual system, and extensive computer technologies are recognized as outstanding features in an educational facility specially designed for modern legal training.

The college is home to one of the nation's premier law libraries. The Law Library has the largest collection of legal volumes and volume equivalents among all public law schools. Its staff numbers 30 library professionals and it provides comfortable seating for 700 patrons, with 440 private study carrels, each equipped with its own data port. The library boasts a fully computerized information retrieval system. WESTLAW and LEXIS are available at numerous terminals for training and research activities, and the online electronic card catalog provides instant information about all cataloged materials.

The college celebrates diversity. Its faculty includes six full-time professors from minority backgrounds, including African American, Asian American, Native American, and Hispanic American. In 1967 the college undertook one of the nation's first and most aggressive affirmative action programs aimed at attracting a more racially and ethnically diverse student body. Its success in this continuing effort has resulted in a minority student population that routinely makes up 15-20 percent of the law college's current student body (the state of Iowa's minority population is around 5 percent).

The college offers a challenging curriculum that is carefully balanced between substantive courses, perspective offerings, examination of ethical values and professionalism, and skills training full time. This policy is consistent with the accreditation standards of the American Bar Association and the Association of American Law Schools.

In extraordinary circumstances, it may be possible for students to enroll for fewer than 10 s.h. per semester. Students who believe they may be unable to attend full time should contact the dean's office before registering for classes.

Full-Time Policy

The faculty believes that students receive a better legal education when they devote substantially all of their time to educational pursuits. For this reason, students are expected to pursue their law training full time. This policy is consistent with the accreditation standards of the American Bar Association and the Association of American Law Schools.

Entrance Dates

The college offers two starting dates to entering students: a class of 30 students enter mid-May (at the beginning of the college's summer session) and approximately 180 students enroll in late August (at the beginning of the college's fall semester). All attend courses full time during fall and spring semesters and may attend summer school at any point during their academic careers. Summer entrants starting classes in May can expect to graduate after completing at least five academic semesters and one additional summer session.

The Juris Doctor degree requires 90 s.h., including required and elective courses. All entering students are expected to take all courses designated as first-year courses and may not register for different courses or fewer semester hours without permission of the associate dean. No student may take more than 18 s.h. per semester or 13 s.h. in the summer session without permission of the associate dean.

Summer Term

The summer term consists of two periods of five-and-a-half week sessions, during which six to eight upperclass and three to four first-year courses usually are offered. Generally, students may attend either or both periods. Students who enter in May attend the entire 11-week session during their first summer.

Admission to the Iowa Bar

A rule adopted by the Iowa Supreme Court requires all law students who intend to apply for admission to the Iowa Bar to register that intention with the court by November 1 of the year they begin law school. Details are available from the College of Law registrar or the clerk of the Iowa Supreme Court.

Program of Study

To be eligible for a J.D. degree, a student must receive course credit for 90 s.h.; take and complete all required courses; satisfy the writing requirements; satisfy the residence requirements; and
First-year courses are as follows.

**Fall Semester**
- 091:102 Introduction to Law and Legal Reasoning 1 s.h.
- 091:120 Contracts and Sales 3 s.h.
- 091:124 Criminal Law 3 s.h.
- 091:132 Property I 3 s.h.
- 091:364 Torts 3 s.h.

**Spring Semester**
- 091:104 Civil Procedure 4-6 s.h.
- 091:116 Constitutional Law I 3 s.h.
- 091:121 Contracts and Sales 3 s.h.
- 091:136 Property II 3-5 s.h.
- Legal bibliography

Students who enter law school in May take all of the above over the summer session and two regular academic semesters, plus 091:210 Appellate Advocacy I and 6-12 s.h. of electives.

Entering first-year students are expected to take all first-year courses and may not register for different courses or fewer hours without permission of the associate dean.

**FIRST-YEAR SMALL-SECTION PROGRAM**
One of the distinctive benefits of legal education at The University of Iowa is the first-year small-section program, which integrates training in basic lawyering skills into substantive courses taught by regular, full-time faculty. The program's purposes include careful development of each student's skills in legal analysis, argumentation, research, and writing.

In the fall semester (summer session for May entrants), the entering class is divided into sections of approximately 30 students. In the spring (fall for May entrants), each section includes approximately 20 students. The subject matter of the small-section courses varies from year to year but has included that of virtually every course in the first-year curriculum.

In the small-section course, students are given a series of challenging assignments, each with a different educational objective. Faculty members provide extensive critiques of student performance and discuss the assigned exercises both in class and in individual conferences.

First-year students receive two additional semester hours for their first-semester small section and two for their second-semester small section. A mandatory curve is applied to the grade distribution in all first-year courses.

**Upperclass Curriculum**
In the second and third years, students are exposed to a broad array of substantive areas of the law, with focus on fact gathering, interviewing, counseling, drafting, transaction planning, negotiation, and litigation. They also concentrate course work or writing and research opportunities in particular areas of interest.

Very few common requirements exist in the second and third years. All students must take 091:210 Appellate Advocacy I in the second year, and before graduating all must take 091:232 Constitutional Law II and a course in professional ethics.

**Writing Requirement**
All students must earn five upper-level writing credits in order to graduate. They earn one of the credits with satisfactory completion of 091:210 Appellate Advocacy I. At least two of the remaining four writing credits must be earned under direct faculty supervision, in courses, seminars, research projects, or legal clinical work. The remaining two may be earned through a combination of courses and activities that carry writing credit, including 091:402 Moot Court Board, advanced appellate advocacy activities, and journals, including the *Iowa Law Review*, *Journal of Corporation Law*, *Journal of Gender, Race, and Justice*, and *Transnational Law and Contemporary Problems*.

**Specialization**
Students may pursue their interest in a particular subject area by selecting appropriate course work and independent research projects. For example, in the corporate business area, students may take as many as 23 s.h. of course work: 091:241 and 091:242 Corporations I and II (6 s.h.), 091:216 Business Planning (3 s.h.), 091:217 Corporate Finance (3 s.h.), 091:355 Securities Regulation (4 s.h.), 091:243 Taxation of Business Enterprise (3 s.h.), 091:239 Corporate Governance and Control (1 s.h.), and 091:253 Employment Discrimination (2 3 s.h.).

**Independent Research and Seminars**
Students may register for 1-3 s.h. of independent research, splitting the hours between semesters as they choose. In selecting topics for independent research or seminars, students should keep in mind that papers they write may be eligible for entry in one of several competitions. No more than 6 s.h. of independent research can be counted toward the J.D.

Most seminars are taken for 4 s.h., including writing units. Although some seminars are completed during one semester, the usual format is 2 s.h. of credit for the class portion (usually taken in the fall), and 2 s.h. for the writing portion of the seminar (usually done in the spring). With consent of the instructor, students may earn up to 6 s.h. in a seminar by writing a longer paper.

**Clinical Programs, Internships, Clerkships**
Students who have completed the equivalent of three semesters, which may include a full summer session, toward their J.D. degrees (usually in excess of 37 s.h.) are eligible to apply to their theoretical knowledge to real cases under the supervision of faculty members and other attorneys through participation in the College of Law's clinical law programs.

Some students participate in in-house programs, in which they may represent inmates at Iowa correctional institutions involved in habeas corpus and civil cases, clients in the AIDS project, immigrants involved in Immigration andNaturalization Service proceedings, and other clients in a variety of civil and criminal cases.

Others are placed in externships in Iowa City or the surrounding area, where they act as staff attorneys, assisting in all phases of the legal process. Typical placements include Student Legal Services, Legal Services Corporation (Iowa City and Cedar Rapids), HELP Legal Services (Davenport), the City Attorney's Office (Iowa City), the federal public defender (Cedar Rapids), and federal judges, including the U.S. Bankruptcy Court (Cedar Rapids). A clinical semester also is available, in which students spend an entire semester in the Iowa Attorney General's Office or the U.S. Attorney's Offices in Des Moines and Rock Island, Illinois.

Students may earn a total of up to 15 s.h. in the Clinical Law Programs, although those taking courses in other University of Iowa colleges may receive no more than 20 s.h. of credit for those courses plus clinic activities and externships.

The College of Law also is involved in programs that do not carry academic credit. Each summer it participates in the County Attorney Internship Program, through which students work as paid employees for county attorneys throughout the state and in the Poverty Law Internship Program, placing students at Legal Services offices. The college also helps place students in a variety of unpaid clerkships and internships nationwide that provide insight into the workings of the legal system.

**Combined Law and Graduate Degree Programs**
The college has developed combined degree programs with a number of University graduate programs through the Graduate College, under which students pursue degrees simultaneously in both colleges.

Combined degree candidates may count up to 12 s.h. earned for the graduate degree toward the 90 s.h. required for the J.D., providing the courses are relevant to both degrees and the 12 s.h. are earned after admission to the combined degree program and after matriculation at the College of Law.

Graduate departments establish their own requirements for the combined degree program, including the number of semester hours taken for...
the J.D. that may be counted toward the graduate degree.

Combined graduate degree programs have been initiated with the Tippie College of Business, the Carver College of Medicine, and the College of Public Health; the Schools of Journalism and Mass Communication, Library and Information Science, and Social Work; the Departments of Accounting, American Studies, Anthropology, Computer Science, English, History, Health Management and Policy, Management and Organizations, Philosophy, Political Science, Religion, Sociology, Spanish and Portuguese, and Urban and Regional Planning; the Division of Counseling, Rehabilitation, and Student Development; and the Division of Educational Policy and Leadership Studies.

Many departments have advisers for the combined program. For more information, consult the associate dean of the College of Law and the individual graduate departments.

**LL.M. in International and Comparative Law**

In keeping with its educational mission of encouraging both broad social awareness and technical professional competence, the College of Law offers a strong program of study in the rapidly expanding fields of international, comparative, and foreign law. It does so essentially for three reasons. First, virtually any lawyer in this era of accelerating global interdependence may be confronted by problems that require knowledge and understanding of international law and foreign legal systems. Second, as professionals and community leaders, lawyers often are called upon to influence, directly or indirectly, the theory and conduct of U.S. foreign policy. And third, by affording unique insight into the nature of law and legal process, the study of international and comparative law helps establish theoretical foundations vital to superior lawyering skills.

American and international students with a J.D. are eligible to work toward the Master of Laws (LL.M.) in International and Comparative Law.

Candidates from the United States must have earned a baccalaureate degree from an approved college and must have graduated with high rank from a law school that is a member of the Association of American Law Schools or that is approved by the American Bar Association. Foreign applicants must have graduated with high rank from a law school or law faculty that maintains equivalent standards. Foreign applicants who hold law degrees from institutions other than English-language universities must score at least 580 on the paper-based version of the Test of English as a Foreign Language (TOEFL) or 237 on the computer-based TOEFL. LL.M. candidates are encouraged to use the college’s resources to shape an individualized program of study. Each student works with a faculty adviser to coordinate course selection.

**Cocurricular Programs**

As many as 6 of the 90 s.h. required for the J.D. may be earned through participation in the college’s rich cocurricular program offerings.

**Client Counseling**

In the Client Counseling Program, students interview and counsel clients and witnesses. They gain experience in recognizing and resolving legal, nonlegal, and ethical issues arising in the context of those activities.

The in-school client counseling competition is held in the fall to determine the two 2-person teams that will represent the University of Iowa College of Law in the regional client counseling competition, held in the spring.

**Moot Court**

The appellate advocacy program familiarizes students with writing appellate briefs, acquaints them with citation form, develops research skills, and strengthens persuasive ability in oral argument at the appellate level. Students in 091:210 Appellate Advocacy I (a second-year requirement) and 091:211 Appellate Advocacy II (elective) receive the case record and testimony from a lower court trial.

The college conducts a number of appellate advocacy competitions. The Van Oosterhout Memorial Moot Court Competition and the Baskerville Moot Court Competition involve students who have demonstrated superior ability in writing and arguing their Appellate Advocacy I problem. These competitions culminate with final rounds argued before a panel of judges.

The Moot Court Board also offers an international law moot court competition for students. Interested students register for 091:430 Jessup International Moot Court Competition. Students identify and research the issues, write an appellate brief, and argue the case before a panel of judges.

The appellate advocacy program is administered by the Moot Court Board, which consists of 20 student judges and an executive board of 12 members.

**Trial Advocacy**

Trial Advocacy (091:370) is a student-run, faculty-supervised program in which students develop and refine skills used to prepare and try civil and criminal cases. The heart of the program is the two-semester-hour course in trial advocacy taught by law school faculty, federal and state judges, and experienced trial attorneys. Students are on their feet during most class sessions, practicing the arts of jury selection, opening statement, direct and cross examination, introduction of exhibits, use of expert testimony, and closing argument. The course culminates with a full-scale trial—from the filing of pretrial motions to the rendering of a jury verdict—conducted by student co-counsel before a visiting judge and a jury of laypersons.

The Stephenson Competition is named after Judge Roy L. Stephenson, a U.S. District Court and Eighth Circuit Court of Appeals judge and a 1940 graduate of the College of Law. Students who demonstrate superior ability in advocacy skills during the trial advocacy courses participate in a series of mock trials judged by local members of the bench and bar. Individuals selected from the competition represent the University of Iowa in the national trial competition.

**Journals**

**IOWA LAW REVIEW**

The Iowa Law Review is a nationally respected publication. Its articles, written by students and professors, present a wide variety of perspectives and analyses of recent developments in law.

Students who meet the writing and secondary hour requirements or who are selected to write for the Contemporary Studies Project are eligible for a position on the Review editorial board, one of the highest honors that can be accorded a law student. They receive additional academic credit and may be eligible for a monetary stipend.

**TRANSNATIONAL LAW & CONTEMPORARY PROBLEMS**

Transnational Law & Contemporary Problems is produced twice a year by Iowa law students. Each issue of this international law journal presents a symposium addressing a contemporary issue of international concern; recent issues have treated such diverse topics as legal challenges and prospects for Africa in the third millennium, families and children in international law, and the effects of globalization on human rights.

Contributors include experts from around the globe in a variety of disciplines, including law, economics, anthropology, sociology, and ecology. The journal also publishes articles written by Iowa law students and sponsors an internationally advertised student writing competition each year.

Law students who have completed at least two semesters may earn up to 2 s.h. of credit by writing for Transnational Law & Contemporary Problems. Highly qualified students who complete the writing and secondary hour requirements may be chosen to fill an editorial position, for which they earn additional credit. They also may be eligible for a monetary stipend.

**JOURNAL OF CORPORATION LAW**

The Journal of Corporation Law is a student-operated periodical that publishes articles relevant to modern business enterprise. The journal’s scope includes antitrust, labor law, securities, taxation, employment discrimination, insurance, products liability, and regulated industries, as well as traditional corporate topics.

Selected articles submitted from practitioners and academics are published in each of four annual issues. Several student articles also are published in each issue.

All students who have completed two semesters of class work are eligible to write for the journal. Those students who meet the writing and secondary hour requirements are eligible for selection to the journal’s editorial board. Students who serve on the editorial board receive additional academic credit. They also may be eligible for a monetary stipend.
THE JOURNAL OF GENDER, RACE & JUSTICE

The Journal of Gender, Race & Justice pushes at the boundaries of traditional legal scholarship and theory in its focus on social justice issues. Each fall the journal hosts a live symposium, bringing nationally renowned legal scholars and practitioners to the college to discuss topics such as race, gender, economic class, ability, and identity. The journal publishes the papers presented at the symposium. Each issue also includes articles written by Iowa law students. All students completing two semesters are eligible to write for the journal. Students who meet the writing and secondary hour requirements are eligible for a position on the editorial board.

Study Abroad

A consortium of seven American law schools, coordinated through The University of Iowa College of Law, offers an annual study-abroad program in which students attend a spring semester at Florida State University's London study center. There they study American and English law with faculty from the American schools and the University of London. Students participating in the program register for 660:824 London Law Consortium.

The College of Law also offers up to 8 s.h. of credit for intensive course work at Arcachon, France, in conjunction with the University of Bordeaux. Courses are offered for four weeks in May and June and are taught in English by professors from Iowa and Bordeaux. Application deadline is March 1. Students participating in the program register for 660:824 Program in Comparative Law in Bordeaux, France.

Two Iowa law students may attend the Bucerius Study Center for Comparative Law in Bordeaux, France, in conjunction with the University of London. Students study American and English law with faculty from the American schools and the University of London. Students participating in the program register for 660:824 Program in Comparative Law in Bordeaux, France.

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The centerpiece of the Boyd Law Building is The Iowa Law Library, which occupies space on four floors and is one of the major repositories of legal materials in the United States. Iowa's collection currently is ranked fourth in the number of volumes and volume equivalents and second in the number of titles among all U.S. law school libraries. It contains more than 1 million volumes and volume equivalents and covers a full range of Anglo-American, foreign, international, and comparative law. The library contains in-depth collections on law of the United States and of every state and territory. Its collection of early English legal source materials and its holdings of state documents are extensive. Since 1968 the library has been a selective Federal Documents Depository. An open-stack policy makes the collection accessible to all patrons, and a full staff of professional librarians serves students, faculty members, and other users. The WESTLAW/Dialogue and LEXIS/NEXIS computerized information retrieval systems are available for training and research activities.

Academic Honors

Graduation With Distinction

Students who entered the College of Law in August 1998 or later may receive their J.D. degrees with honors, in recognition of superior scholarship, as follows. (Averages are figured on final grade-point average.)

- With highest distinction—cumulative g.p.a. of 85 or higher
- With high distinction—top 12.5 percent of the graduating class
- With distinction—top 37.5 percent of the graduating class

Order of the Coif

The Order of the Coif, a national legal honor society, has a chapter at The University of Iowa. The order is dedicated to scholarship and advancement of high ethical standards in the legal profession. Membership is drawn from the top 10 percent of the senior class. Initiates are selected by the faculty after graduation.

Prizes and Awards

Hancher-Finkbine Medallions are awarded each year by the University to outstanding graduates; honorees are chosen from nominations made by University departments and colleges based on learning, leadership, and loyalty.

The Philip G. Hubbard Human Rights Award is presented each year by the University to recognize outstanding contributions to human rights and equal opportunity, as described in the University’s Human Rights Policy.

The Alan I. Widiss Faculty Scholar Award is presented to the student who has made an especially outstanding and distinctive contribution to the development of written legal scholarship.

The Randy J. Holland Award for Corporate Scholarships is presented to the student who has written an outstanding scholarly paper in the area of corporate law.

The The Robert S. Hunt Legal History Award is presented to a student who has written an outstanding scholarly paper in the field of legal history.

The Donald P. Lay Faculty Recognition Award is presented to the student who has made distinctive contributions to the College of Law’s curricular, community, or education programs.

The Iowa State Bar Association Prize is presented to the student who possesses the attitude, ability, and other qualities that indicate success as a future leader of the bar association.

The Antonia "D.J." Miller Award for Advancement of Human Rights recognizes outstanding contributions by a student to the advancement of human rights in the law school community.

The Dean’s Achievement Award is presented each year to a student, who, through his or her achievements, has exemplified, promoted, or contributed to cultural, racial, or ethnic diversity in the law school.

The National Association of Women Lawyers Award is presented to a law student who contributes to the advancement of women in society and women in the legal profession and who also has attained high academic achievement.

The Erich D. Mathias Award for International Social Justice is presented to a student who has made an outstanding contribution or demonstrated commitment to attaining international social justice.

The John F. Murray Award recognizes the student with the highest academic standing in the graduating class.

The ALL-ABA Scholarship and Leadership Award is presented to a student who represents an outstanding combination of scholarship and leadership, the qualities embodied by the American Law Institute and the American Bar Association.

Awards for Outstanding Scholastic Achievement (West Group) are presented to students who have shown outstanding performance in both the academic and cocurricular programs of the College of Law.

The Russell Goldman Award recognizes the student who has demonstrated the most improved academic performance after the first year.

The Iowa College of Law Appellate Advocacy Award is presented to a student for outstanding achievement in and service to the appellate advocacy program.

The Iowa Academy of Trial Lawyers Award is presented to a student for outstanding achievement in the Roy L. Stephensohn Trial Advocacy Competition.

The International Academy of Trial Lawyers Award is presented to a student who has demonstrated distinction in trial advocacy skills.

The Michelle R. Bennett Client Representation Award recognizes outstanding service in the college’s clinical law programs.

The ABA/BNA Award for Excellence in the Study of Intellectual Property is presented to a student who has demonstrated excellence in the study of intellectual property law.

The American Bankruptcy Institute Medal for Excellence in Bankruptcy Studies is presented to a student who has demonstrated excellence in the field of bankruptcy.

The Joan Huefner and Stephen Steinbrink Real Estate Law and Property Award is presented to a student who has demonstrated excellence and promise in the field of real estate law.

Special Resources

Iowa Law Library

The centerpiece of the Boyd Law Building is The University of Iowa Law Library, which occupies space on four floors and is one of the major repositories of legal materials in the United States. Iowa's collection currently is ranked fourth in the number of volumes and volume equivalents and second in the number of titles among all U.S. law school libraries. It contains more than 1 million volumes and volume equivalents and covers a full range of Anglo-American, foreign, international, and comparative law. The library contains in-depth collections on law of the United States and of every state and territory. Its collection of early English legal source materials and its holdings of state documents are extensive. Since 1968 the library has been a selective Federal Documents Depository. An open-stack policy makes the collection accessible to all patrons, and a full staff of professional librarians serves students, faculty members, and other users. The WESTLAW/Dialogue and LEXIS/NEXIS computerized information retrieval systems are available for training and research activities.
Several CD-ROM and online data retrieval systems are available on workstations open to the public.

The entire collection of the law library is cataloged on the InfoHawk database, including the collection of U.S. government documents. The InfoHawk system also features an automated circulation system for checking materials out of the library.

The library uses both OCLC, the Online Computer Library Center, and RLG (Research Libraries Group) for online cataloging, catalog card production, and interlibrary loans. OCLC’s database contains the collections of most of the public and state historical libraries throughout the United States. RLG’s database includes the major research collections in the country and abroad.

Writing Resource Center

The Writing Resource Center is dedicated to strengthening law students’ command of writing skills central to the study and practice of law. The first writing center in the country established specifically for a law school community, the Writing Resource Center serves as an extension of the classroom and supplements the college’s small-section writing program.

Members of the writing center’s staff help law students with a broad range of writing, including class assignments, seminar papers, law journal articles, and symposium presentations. They also assist students with résumés, application letters, and writing samples.

In addition to helping students with general writing skills in one-on-one tutorial sessions, the center’s staff trains editors in editing skills, sets up individualized programs of study, offers strategies for overcoming writer’s block and adapting material for various audiences, and provides guidance on a variety of grammatical, stylistic, and rhetorical matters.

The Writing Resource Center is staffed by writers, including second- and third-year law students, lawyers, and a director whose Ph.D. degree is in the area of writing instruction.

Academic Achievement Program

The Academic Achievement Program (AAP) helps students achieve their potential as they go from successful undergraduate careers to the unique challenges of law study. Although AAP focuses on helping first-year students, its programs are open to all.

AAP presents a variety of programs, including a fall-semester lecture series for new students. Examples of content areas include time management for law study, developing effective study groups, outlining and organizing class notes and course materials, taking essay exams, and answering multiple choice tests. Several weeks before exams, a pre-exam series focuses on exam readiness. AAP group programs for the summer entering class are geared especially to the needs of summer term students.

Spring semester programming responds to special challenges of the second semester, including reviewing and learning from fall exams, taking on complex writing projects, exam preparation, and other matters.

In addition to offering group programs, AAP provides individual help with study skills. When personal issues affect a student’s concentration or studying, the program provides direct help and refers students to University and community support resources.

Career Services Office

The College of Law Career Services Office provides career planning and job search assistance to law students. Each year the office sponsors a comprehensive series of programs on career options and job search skills. It also maintains a library of resources and provides individual advising by professional staff. Job search assistance also is available to alumni.

The special rigor that characterizes Iowa’s distinctive brand of legal education attracts a wide variety and growing number of recruiters to campus each year. During a typical academic year, more than 250 employers send representatives to Iowa City to conduct job interviews, and many more firms use the college’s Career Services Office to search for prospective employees through written inquiries and off-campus interviews.

Iowa graduates traditionally have had excellent success in finding employment; usually, more than 98 percent are employed within a few months of graduation. The career services staff is happy to talk with prospective students regarding the college’s programs and the success of its graduates.

Financing a Legal Education

The College of Law administers its substantial financial aid program to advance the goals of its selective admissions policy. Grants, scholarships, work-study funds, and loans are awarded on the basis of need or merit to provide access to legal education for the talented and diverse students admitted to the college. A number of part-time employment opportunities also are available to upper-level students.

Inquiries regarding financial aid should be directed either to the University’s Office of Student Financial Aid or to the College of Law’s Office of Admissions and Financial Aid.

All financial aid information is subject to change without notice.

Application for Financial Aid

Eligibility for financial aid is based on need established by completion of the Free Application for Federal Student Aid (FAFSA) and the required supporting documents. The FAFSA should be completed online at www.fafsa.ed.gov after January 1 each year and should be completed as soon as possible thereafter, since some financial aid is subject to the availability of funds.

Although financial aid awards are not made until after applicants are admitted to the College of Law, applicants should not wait for the notice of admission before filing the FAFSA. Admitted students who provide the required documents are informed of their eligibility for financial aid on the award notification letter. Students must reapply for aid every year.

Applicants are urged to investigate other sources of aid. Public libraries, private and civic organizations, and the Internet are excellent sources for information about financial aid resources.

Scholarships, Fellowships

Merit-Based Support

All students admitted to the College of Law are considered for merit-based scholarships and fellowships based on their academic achievement. A separate application is not required. Recipients are notified by letter. Potential aid renewal for the second and third year for some scholarships and fellowships requires continuing class rank in the top 25 percent. Awards may range from $500 to full resident tuition with a research assistance component in upper-level years.

Need-Based Scholarships

All admitted students who file a Free Application for Federal Student Aid (FAFSA) and required supporting documents are considered automatically for need-based scholarships. Recipients are notified by award letter. Awards may range from $500 to full resident tuition.

Iowa Law School Foundation Scholarships

The University of Iowa Law School Foundation Scholarships include scholarships based on need, merit, or a combination of need and merit. These scholarships are available to a limited number of students who meet the criteria established by the scholarship donors. All admitted students are considered for the merit-based scholarships, and all admitted students who file the FAFSA and required supporting documents are considered automatically for the need-based scholarships. A separate application is not required. Recipients are notified by award letter. Awards may range from $200 to full resident tuition.

Law Opportunity Fellowship

The College of Law is committed to affording opportunity for a legal career to persons historically underrepresented in the legal profession. The Law Opportunity Fellowship Program was established by the University to provide access to law school for students from groups and backgrounds historically underrepresented within the academic community. Among criteria considered in awarding the fellowships are educationally and/or socioeconomically disadvantaged backgrounds, existing educational debt load, leadership potential, academic merit, and importance of the fellowship award to the student’s financial ability to attend law school.
The Law Opportunity Fellowship provides full resident tuition for three years and the opportunity to hold a research assistant position for the second and third years. All admitted students who file the FAFSA and required supporting documents are considered for the Law Opportunity Fellowship. A separate application is not required. Recipients are notified by award letter.

### Employment

The College of Law discourages student employment during the first year of law school, due to the intensive course schedule. In no event may a full-time student work more than 20 hours per week.

### Research Assistant Positions

Research assistant positions are available with many faculty members for second- and third-year students. Students classified as nonresidents who hold quarter-time research assistantships (10 hours per week) automatically qualify for resident tuition status during the semester(s) in which they serve as research assistants.

### UI Part-Time Employment

The University offers a variety of part-time employment positions for students. Students do not need to apply for financial aid in order to work in these positions. Information about part-time employment is available from the University's Office of Student Financial Aid.

### College Work-Study

Federal College Work-Study is a need-based employment opportunity for a limited number of students in their second and/or third year at the law college. College Work-Study may reduce the student's William D. Ford Federal Direct Loan eligibility. Students must demonstrate financial eligibility for work-study through the FAFSA and its required documents.

### Community Employment

A limited number of jobs are available throughout the local legal community, and there are many opportunities for nonlegal employment in the area. Students should contact employers directly.

### Loans

All admitted students who file the FAFSA and required supporting documents are considered for the University of Iowa Law Foundation Loan, the Federal Perkins Loan, and the William D. Ford Federal Direct Loans.

### Iowa Law School Foundation Loan, Federal Perkins Loan

These are low-interest loans based on exceptional financial need. Interest does not accrue and payments are not required until the student is no longer enrolled at least half-time in school.

### Federal Direct Ford Loans

The William D. Ford Federal Direct Subsidized Loan is a low-interest loan based on financial need. Interest does not accrue and payments are not required until the student is no longer enrolled at least half-time in school. Interest on the Federal Direct Unsubsidized Ford Loan accrues while the student is in school; however, both principal and interest payments may be deferred while the student is in school.

The interest rate for the Federal Direct Subsidized Ford Loan is variable. Adjusted annually, it is not to exceed an annual percentage rate of 8.25 percent.

### Law Access, Iowa Partnership, and Law Achiever Loans

The Law Access Loan, the Iowa Partnership Law Loan, and the Law Achiever Loan are private loan programs for students whose cost of attending law school has not been met through other sources of financial aid. A separate application is required, and a credit check is a required part of the process to determine eligibility.

### Admission

#### Undergraduate Education and Law School

Applicants for admission to The University of Iowa College of Law must complete all requirements for the baccalaureate degree before beginning law school.

Fulfillment of the basic requirements does not guarantee admission. The College of Law Admissions Committee selects applicants it deems best able to help the college fulfill its primary mission of providing a high quality legal education in a diverse and stimulating environment and preparing students to serve as leaders in their professional and civic communities. Preference is given to applicants who are residents of Iowa (approximately 65 percent of each entering class is drawn from Iowa residents).

The services that College of Law graduates are called upon to perform are so varied, and the possible fields of endeavor so broad and diverse, that the college prescribes no uniform undergraduate program for those planning to enter law school. With the assistance of faculty advisers, each student should develop an undergraduate program that explores and develops that student's particular intellectual interests.

Iowa strongly endorses the three basic objectives recommended by a committee of the Association of American Law Schools: education for comprehension and expression in words; education for a critical understanding of the human institutions and values with which the law deals; and education for greater power in thinking. Anyone thinking of attending law school should keep these objectives in mind while planning an undergraduate course of study. The association's recommendations emphasize that undergraduate education of students for a full life through liberal education is far more important than education directed too pointedly toward later professional training and practice. Students are urged not to sacrifice broad perspective for detailed specialization.

### Selection of Applicants

The college uses multiple criteria in evaluating applicants for admission. Part of the entering class is admitted under a “presumptive admit” process, in which the faculty admissions committee admits students primarily on the strength of their numbers, namely the cumulative undergraduate grade-point average and LSAT score. Before admission offers are made, each applicant's complete file is reviewed to ensure that the overall record suggests the applicant's suitability for admission, in keeping with the primary mission of the law school.

Although undergraduate academic record and performance on the LSAT are both important admission criteria, the college recognizes that in some circumstances they do not accurately reflect an applicant's potential to succeed in the study of law, to develop skills as a leader, to enrich the learning environment of his or her fellow students, and to serve the public interest as a lawyer.

To evaluate applicants' total suitability for admission, the college has developed a “numbers-plus” admissions policy, under which part of each entering class is admitted. Under the “numbers-plus” policy, undergraduate record and LSAT scores are supplemented by nonquantifiable factors that may provide insight to an applicant's overall potential for success in the study and practice of law.

For example, an applicant who can substantiate that his or her standardized test scores are not predictive of academic performance in law school may receive proportionately greater consideration from the committee for his or her grade-point average. Other factors the committee may consider include special academic or professional abilities not reflected in the grade-point average, disability or serious health factors that affected prior academic performance, extracurricular activities, exceptional school-year work commitments due to family financial circumstances, postbaccalaureate academic success, including graduate study, law-related employment experience, public service commitment, leadership in groups historically underrepresented in the legal profession, educational or socioeconomic disadvantage, native language other than English, unusual motivation or perseverance in overcoming obstacles to law study, and any other information the committee considers relevant to the applicant's potential for law study.

Candidates who wish to bring such factors to the committee's attention may do so in their personal statement, through letters of recommendation, or by other documentation included with their application.

### Entrance Dates

Applicants may apply for either May or August admission. Students who enter in May have the opportunity to graduate in less than three years.
Applications for both entrance dates are accepted beginning September 1 of the year prior to admission, with an application deadline of February 1 in the year of admission. Because the college has a rolling admissions process, applicants are encouraged to submit their applications as soon as possible.

Each application must include an application fee, which is nonrefundable. Students from disadvantaged backgrounds who cannot afford the fee should apply for a waiver.

The May and August entrance dates have separate applicant pools. Candidates may apply to the May entering class, August entering class, or both (with a preference indicated on the application). Admission to the May entering class does not guarantee admission to the August entering class, and vice versa.

For additional information, visit the college’s web site or contact the Admissions Office, c/o College of Law, The University of Iowa, Iowa City, IA 52242-1113. Applications are available online at http://www.law.uiowa.edu/admissions.

Application Process

LSDAS Report and Transcripts

The University of Iowa College of Law participates in the Law School Data Assembly Service (LSDAS) and requires its prospective students to register for this service through the Law School Admission Council (http://www.jsac.org). The council’s mission is to serve law schools and prospective law students alike. Prospective law applicants will find the information they need to complete their application for admission to the law school in the council’s free, annual publication, Law School Registration and Information Book, and on the council’s web site.

It takes approximately three weeks from the time the College of Law requests the LSDAS report until it arrives. Applicants should keep this in mind as they prepare to submit all of their application materials by the February 1 deadline.

Applicants whose fall coursework does not appear on the LSDAS report should send an official transcript of that course work to the University’s Office of Admissions. Applicants who are already University of Iowa students or are not registered for fall classes are exempt.

Applicants are responsible for submitting an official transcript from each college or university they have attended to Law School Admission Council, Box 2000, Newtown, PA 18940-0998.

Each applicant’s undergraduate institution must forward the applicant’s class rank or the grade distribution for the applicant’s class to the College of Law, if such information is available. Information about class rank is helpful in the application process, but not required. Currently enrolled or former University of Iowa students need not provide this information.

Before classes begin, every applicant who accepts admission to the College of Law must file official transcripts showing conferral of degree with the University’s Office of Admissions.

Letters of Recommendation

The college requires applicants to submit at least one letter of recommendation. Recommendations from professors or others who can comment on the candidate’s critical thinking, writing skills, and potential for success in law school are particularly welcome.

The college participates in the Letter of Recommendation Service offered by the Law School Admission Council. A letter of recommendation form can be downloaded at http://www.lsac.org. Recommenders should send letters of recommendation with the required forms, to Law School Admission Council, P.O. Box 8508, Newtown, PA 18940-8508.

Law School Admission Test

Applicants for admission must take the Law School Admission Test (LSAT). The test is given several times each year and may be taken at numerous locations in the United States and abroad. Test application forms may be obtained from the Law School Admission Council.

Applicants are urged to take the test no later than the fall preceding the fall semester or summer session for which they are applying. Applicants’ LSAT scores may not be available until approximately four weeks after their test date.

The December test date is the last one that the admissions committee can consider for applicants requesting admission the following summer or fall. Scores more than five years old are not accepted.

Foreign students whose native language is not English also must take the Test of English as a Foreign Language (TOEFL).

Deferrals

Admission is for the year of application; deferrals are granted only in extraordinary circumstances.

Deposit Upon Acceptance

All applicants must make a nonrefundable deposit of $250 (U.S.). Summer entrants accepted before February 15 must submit the deposit by March 1; those accepted after February 15 have two weeks to submit the deposit. Fall entrants accepted before March 15 must submit the deposit by April 1; those accepted after March 15 have two weeks to submit the deposit.

Fall entrants must pay a second nonrefundable deposit of $150 (U.S.) by June 15.

For those who enroll, the deposit is credited toward tuition and fees. All accepted applicants, including scholarship, fellowship, and loan recipients, are required to pay the $250 deposit. Applicants who fail to make the deposit by the specified time forfeit their place in the entering class.

Academic Policies

Residence Requirements

To satisfy the academic residency requirements, students must complete 90 weeks of class during which they are enrolled for a minimum of 10 class hours per week. Partial credit is earned pro rata when fewer than 10 hours are taken.

Full residency credit is earned only when a student enrolls for 10 or more class hours during the term and earns credit for at least 9 s.h. During the summer term, full residency credit is earned only when a student earns a minimum of 4 s.h. for each summer session attended.

Students may graduate in fewer than three full-time academic years by combining summer session and intersession courses, earning residency credit equal to one full semester. For example, students who begin law study in May 2004 may graduate as early as December 2006 if they take summer session and intersession courses. For more information, consult the College of Law registrar.

Transfer Credit

No more than two semesters of residency (30 weeks of full-time residence) and no more than 30 s.h. may be transferred from another law school. To qualify for transfer credit, courses must have been completed at an ABA-accredited law school. Grades received at another law school are not counted in calculating the cumulative grade-point average.

Courses Taken Before Admission to the College of Law

Except for transfer students from other law schools, students may not receive credit toward residence requirements for courses taken before admission to the College of Law. They also may not receive credit toward the 90 s.h. requirement for the J.D. by taking non-law graduate courses before enrolling in the College of Law. This applies to all law students, including those enrolled in joint degree programs with the Graduate College.

With approval of the dean and in consultation with the faculty admissions committee, students may count toward the J.D. up to 6 s.h. that they earned in law courses taken at the college or at another accredited law school while they were graduate students or postbaccalaureate special students (L-9) and before they were admitted to the College of Law. In deciding whether to award credit for such course work, the dean and the admissions committee consider the nature of the course, the grade received (minimum of 70), how much time has gone by since the course was taken, and the law school at which the course was taken.

Courses Taken Outside the College of Law

Students who take courses outside the College of Law must first obtain permission from the associate dean. If “special permission of the instructor required” is indicated on ISIS, the student also must obtain the instructor’s signature.
Students not enrolled in a joint degree program may apply toward the J.D. a maximum of 6 s.h. earned in courses outside the College of Law. Such courses are approved only if they contribute directly to the professional competence of an attorney or broaden the student’s understanding of law, the legal process, or any particular legal subject. More information about limitations on accreditation of non-College of Law courses is available from the associate dean.

Courses Taken at Another Law School After Enrollment at Iowa

With the permission of the dean, enrolled students may receive credit for courses taken and passed at other ABA-accredited law schools, up to a maximum of 30 s.h. Grades of C and higher are reflected on the student's transcript as credit for the designated semester hours. Grades of D are reflected as a 63 on the Iowa transcript.

Externships

Students may be able to arrange externships for academic credit with certain nonprofit organizations and government agencies. Most externships are established for the summer, for a maximum of 6 s.h. of credit. Externships also may be arranged for the fall or spring semester. All students who participate in externships must write a research paper. Externship credit counts toward the maximum allowable clinic credit. Students have arranged recent externships with the U.S. Department of Justice, the Small Business Administration, U.S. district court judges, bankruptcy judges, and the American Civil Liberties Union.

Grading Policy

A numerical grade is assigned to each student for each course and is recorded in the University's permanent record.

The highest grade awarded at the College of Law is 92, the lowest 55. No academic credit is given for grades below 60.00 or for grades of “fail.”

Numerical grades can be translated into letter grades as follows.

92.85 = A
84.80 = B+
79.75 = B
74.70 = B-
69.65 = C
64.60 = D
59.55 = F

Professors may disenroll students for cause or reduce grades for inappropriate academic conduct, for example, plagiarism. Such measures are subject to appropriate due process.

With the dean's permission, a student may retake a course in which he or she has received a failing grade. The second grade is recorded either as “pass” (a grade of 65 or higher) or “fail” and is not used in computing the student’s cumulative grade-point average. Rather, the first grade received for the course remains on the transcript and is used in computing the grade-point average.

If the course being retaken is sectioned, the dean designates the section to which the student will be assigned.

The faculty does not apply a mandatory grade curve beyond the first year, but grades in second- and third-year courses are expected to approximate the curve used in large-section first-year courses.

Pass/Fail Grades

Credit for certain courses is offered only on a pass/fail basis. In the case of a failing academic performance in a pass/fail course, the faculty supervisor or instructor may assign a failing numerical grade (i.e., between 59 and 55). Individual faculty members may allow students to withdraw from a course rather than receive a failing grade.

Miscellaneous Grading Marks

Marks other than “pass,” “fail,” and numerical grades are as follows.

“R” means registered. It indicates that a student has completed the first half of a year-long program, such as a seminar or journal, for which a grade cannot be assigned until the second half of the program has been completed.

“W” means withdrawn. It carries no course or residency credit and is not used in computing the cumulative grade-point average.

“I” means incomplete. It carries no course credit toward a degree until it is changed, nor is it used in computing the cumulative grade-point average. A mark of “I” may be reported only in exceptional cases and only if the unfinished part of the work is small and is unfinished for reasons acceptable to the instructor, and if the student's standing in the course is satisfactory. Students remove an incomplete by completing the unfinished work during their next period of residence.

Class Ranking

Students in the top 10 percent in each class may be informed of their exact rank grade-point averages at the 87.5 percentile and 62.5 percentile are posted.

Students are ranked following the fall semester, spring semester, and summer session each year. Final class standing is determined each August and is available in September. It includes students who completed all graduation requirements in August, May, and the previous December. For purposes of ranking underclass students, the same system is used, based on the expected graduation date.

Release of Transcripts

A student's grades are not given to persons outside the College of Law, including prospective employers, without written permission of the student.

Class Attendance and Preparation

Students must be regular and punctual in attending classes and must be prepared to participate in class discussions. Students may be dropped from a course or failed, at the discretion of the instructor, for excessive absence or repeated lack of preparation. Students also are expected to attend special class meetings and be punctual in submitting course assignments, memos, and papers.

Examination Policy

One examination is given in each course, with few exceptions. Before taking an exam, each student is assigned an identification number for that exam. Instructors report final exam grades by each student’s number to the dean's office, where the grades are kept on file for two years. After the grades are recorded, the dean’s office gives the names corresponding to the students’ numbers to the instructor, who then assigns final grades for the course. This permits the instructor to award credit for class participation and ensures anonymity in exam grading. Students and the registrar’s office receive only the final grades.

Students who have more than one examination scheduled for the same day, two exams within 24 hours, or exams four days in a row may schedule a make-up time for one of the exams. Students who have exams three days in a row may reschedule one only with permission of the instructor.

Students usually reschedule exams on the Saturday morning immediately following the regularly scheduled exam. Whenever possible, the dean sets aside one to three days as an upperclass study period between the end of regular classes and the first regularly scheduled upperclass exam.

Extra Exam Time for Students Whose Native Language is Not English

Students who are at a substantial disadvantage in taking a timed exam because their native language is not English may receive additional time to complete the exam, commensurate with the extent of their disadvantage.

Students seeking additional time must make a written request in the dean’s office by the deadline announced for the semester in which the exam is to be taken. An undergraduate degree from an English-speaking college or university is considered prima facie evidence that the student is not qualified for extra time.

Accommodations for Students With Disabilities

A physical or mental disability may put a law student at a substantial disadvantage in taking an examination. For purposes of the college’s policy on exam accommodations for students with disabilities, a student with a disability is one who has a physical or mental impairment that substantially limits one or more of the student’s major life activities. Commensurate with the nature and extent of the disadvantage, the College of Law makes reasonable accommodations in exam conditions for students, while respecting faculty members’ discretion to decide how to test the substantive knowledge and analytical skills essential to the course or the legal profession and preserving the fairness of exams for students without disabilities. Students who believe they may be entitled to exam
accommodations are encouraged to consult with the associate dean as soon as possible after entering law school, even if they have not yet decided whether to request an exam accommodation. Whenever possible, instructors do not learn the identity of a student who requests or receives exam or instructional program accommodations.

In addition to exam accommodations, the college is committed to providing reasonable accommodations for students with disabilities for all instructional, cocurricular, and extracurricular activities it sponsors.

**Drop/Add Policy**

Students may add or drop a regularly scheduled course or seminar during the first two weeks it meets. Starting with the first day of class, students must have consent of the instructor to add or drop a course.

A student may not drop a course once the final examination in the course has been distributed to the student. Individual instructors may set a policy of not permitting drops past a certain time limit, except in hardship cases; they are encouraged to distribute written notices of their policies during the first week of class.

A student who, after two weeks, drops an elective course for reasons not related to hardship may not reenroll in the course in a later semester without the instructor’s permission.

Students who wish to drop Appellate Advocacy II without causing cause may do so prior to the distribution of the problem and the finalization of participants in their rounds. After the problem has been distributed, only the faculty adviser may authorize a drop and then only upon show of cause.

**Withdrawal**

First-year students who withdraw during the academic year or who fail to reenroll for the second semester are not eligible to return to school. Instead, they must compete with other applicants for the year in which they wish to return. The reason for the withdrawal and the quality of work done prior to withdrawal or failure to reenroll are considered when students reapply.

Unless granted a leave of absence by the dean, second- and third-year students who fail to enroll for any semester during the academic year must obtain permission from the admissions committee if they wish to reenroll. (Students are considered first-year if they have fewer than 27 s.h. of credit at the time of withdrawal or failure to enroll.)

The associate dean may grant a second- or third-year student a leave of absence for up to one year, if the student shows good cause.

Students who withdraw from the College of Law after paying tuition are entitled to a pro rata refund.

**Audit**

Students may audit a class with the instructor’s permission, provided the class is not filled within the preregistration period.

**Student Conduct**

Students are expected to act in a manner appropriate at a professional school. An act or omission that is dishonest or designed to take unfair advantage may subject a student to sanctions as serious as expulsion from school. Misconduct policies and procedures are published annually in the college’s Student Handbook.

**Academic Advising**

**Associate dean for academic affairs:** The associate dean for academic affairs works with the dean on academic programs and problems of the law school.

**Associate dean for student affairs:** The associate dean for student affairs provides academic advice and counseling to students; advocates for student concerns; offers information and makes referrals for students with professional, personal, or family problems; facilitates operation of the student discipline system; and arranges reasonable accommodations for disabled students. The associate dean also advises law students pursuing combined degrees in University of Iowa graduate programs and serves as the liaison with those programs.

**Faculty advisers:** Each faculty member advises five or six students on course selection, academic matters, and when necessary, other concerns.

**Small section instructors:** Small section instructors advise students enrolled in their small sections during students’ first year of study.

**Ombudsperson:** Each year one or two tenured faculty members are selected by the Iowa Student Bar Association to serve as law school ombudspersons. Students who have a problem or grievance should seek an ombudsperson’s help. All complaints are handled in strict confidence.

**Registrar:** The law school registrar is in charge of student record keeping and should be students’ first recourse for information about course enrollment, scheduling, residence requirements, combined program status, student certification for various loan agencies and state bar applications, and progress toward graduation.

**Student Recruitment and Academic Support Committee:** The committee oversees coordination and periodic review of how the college provides academic and curricular counseling to law students. The committee reviews and coordinates the college’s efforts to provide information, offer services and programs, and make referrals regarding its students’ mental and emotional health. The committee has oversight for assignment of faculty academic advisers to law students, for matters of faculty/student collegiality, and for the Academic Achievement Program.

**Facilities**

The Willard L. Boyd Law Building exemplifies Iowa’s continuing commitment to legal education and the legal profession. The large circular structure reflects the special character of the Iowa law school and allows the college to operate in a physical environment in which every square foot of space is designed to promote the college’s academic and professional programs.

Classrooms in the Boyd Law Building provide an atmosphere conducive to the college’s goals. They are air conditioned, carpeted, and properly lit. Small seminar rooms, the clinic suite, and special-purpose learning areas are distributed throughout the building to permit students and faculty members to work together in close professional interaction. The largest classroom seats only 100 people. The student lounge, faculty lounge, and faculty offices are located on the same floor, encouraging interaction between students and faculty members.

**Student Services**

**Bookstore**

The College of Law has its own bookstore, which carries all assigned texts and materials for law classes. It also stocks a variety of professionally prepared outlines, hornbooks, and other study aids, as well as a limited selection of school supplies, including pens, notebook paper, computer disks, and so forth.

Photocopied handouts and teaching materials assigned by course instructors are available through the bookstore.

Students may charge costs for books, class materials, and supplies directly to their University accounts.

**Computers and Word Processing**

Since electronic information technologies are vital in legal and business work, the College of Law encourages all law students to become proficient with computers. Access to word processing software also helps law students draft the many papers, articles, and other manuscripts that are a regular part of the law curriculum. The college has installed 41 personal computers attached to a local area network for use by its students. Students also are encouraged to purchase computers, if possible, and to use them in connection with their law school work.

The law college provides network and Internet access from all student library carrels. To participate, law students supply their own laptop computers, which must meet required specifications. Specifications are available from the Law Library computer support office.

The college’s computers are loaded with WordPerfect and Microsoft Word software and the college provides training for access to the two major online computer research databases, West Publishing Company’s WESTLAW and Mead Data’s LEXIS. Once students complete the training, they have unlimited free access to these services at home via their own PCs and on the student and public workstations in the Law Library.

The Law Library also provides CD-ROM workstations that allow access to databases in CD-ROM formats. Some of the titles available are United Nations documents, complete from 1945; Index to Legal Periodicals; TIARA, a database...
Iowa Law School Foundation

During the three years that students spend at the College of Law, many of the classes, programs, and projects in which they participate are partially or totally supported by private gifts from law alumni and friends.

The Iowa Law School Foundation was created by the 1952 graduating class to promote close relations between the college and its alumni and to solicit gifts for scholarships, faculty support, and other projects that benefit the college.

Foundation funding benefits student scholarships, loans, and research assistantships; guest speakers; student orientation activities; the clinical law programs; Moot Court, Trial Advocacy, and Client Counseling programs; the student-edited law journals, and Iowa Advocate.

In order to support these programs and activities, the Iowa Law School Foundation actively solicits contributions from the college’s more than 8,700 alumni.

Legal Aid

Students in need of legal assistance may consider turning to the University’s Student Legal Services. The Legal Services Corporation of Iowa also provides civil representation to indigent clients.

Courses

Some courses are offered irregularly. For information on current course offerings, consult the College of Law registrar.

First Year

091:102 Introduction to Law and Legal Reasoning 1 s.h.
Forms and interpretive methods of legal reasoning, problems of legitimacy, basic concepts, intellectual skills necessary for understanding the law.

091:104 Civil Procedure 4-6 s.h.
Subject matter jurisdiction, jurisdiction over the person, venue, pleadings, motion practice, summary judgment, simple joinder of parties and claims, pretrial discovery procedures, the trial, claim and issue preclusion.

091:116 Constitutional Law I 3-5 s.h.
Constitutional allocation of governmental powers; rule of the courts in constitutional cases, powers of and relationships among branches of national government, relationship between state and national governments.

091:120 Contracts and Sales Transactions I 1, 3-5 s.h.
Purpose, scope, development of protection accorded to contractual agreements; judicially developed rules; statutes governing formation, performance, interpretation of contracts; remedies for breach of contract.

091:121 Contracts and Sales Transactions II 3-5 s.h.
Continuation of 091:120; emphasis on U.C.C. Article 2.

091:124 Criminal Law 3, 5 s.h.
Basic understanding of the substantive criminal law; underlying premises of and justifications for criminal law; general doctrines that dictate the minimum elements necessary to impose criminal liability, essential requirements of culpable conduct, blameworthy
091:281 Interest-Based Negotiation for Lawyers 2-3 s.h. Theory and practice of interest-based or problem-solving negotiation; acquisition and enhancement of the skills for this approach to negotiation.

091:282 International Business Transactions 1-3 s.h. Legal and practical issues in international trade and investment, typical private transactions, such as the sale of goods (documentary sales transaction, INCOTERMS, letters of credit, agency, distribution), transfer of technology (franchising, licensing), and direct investment across national borders; how private international law, sales, investment, and licensing transactions are structured to permit private businesses to minimize and plan for the risks associated with conducting business on a global scale.

091:283 Copyrights 2-3 s.h. Federal law of copyrights, primarily the Copyright Act of 1976; emphasis on disputes affecting new technologies, such as videotape, computer hardware and software, electronic data transfer, cable television rebroadcast; ability of legal concepts to keep pace with technological developments.

091:284 Insurance 3-4 s.h. Legal principles and doctrines applicable to insurance marketing arrangements, determining the persons and interests protected by insurance coverages, risks transferred, when rights will be at variance with insurance policy provisions, claims process, governmental regulations of the insurance business.

091:285 Foreign Comparative and International Legal Research 1 s.h. Treaty research, locating and identifying documents from international organizations and tribunals, legal research in selected jurisdictions outside the United States; print and electronic sources and research methods in foreign and international law; project to complete a pathfinder on a foreign or international law topic.

091:287 International Trade Law: Basic Norms and Regulations 3 s.h. Basic norms and legal framework of international trade as expressed in the GATT/WTO regime and U.S. trade laws; issues raised by regional trade blocs such as NAFTA; controversies such as the economic and philosophical justifications for, and objections to, free trade from a variety of perspectives.

091:288 Jurisprudence 2-3 s.h. Selected legal philosophies, with emphasis on legal positivism and natural law, nature of jurisprudence, relationship between law and morality, authority, normativity, institutional nature of law, political obligation. Same as 144:143.

091:289 International Law of the Oceans and Their Resources 2-3 s.h. Difficulties that confront the world’s oceans; law relating to protection of their resources, particularly marine living resources and maintenance of biodiversity.

091:290 Juvenile Delinquency and the Juvenile Justice System 1-3 s.h. Juvenile criminal offenders (“juvenile delinquents”), juvenile status offenders (e.g., runaways and truants), and the juvenile justice system; law governing investigation of juvenile crimes, juvenile court delinquency procedures, juvenile corrections; role of attorney in delinquency proceedings.

091:291 International Environmental Law 3 s.h. Laws and institutions developed by the international community to deal with international environmental problems, including those of the atmosphere (acid rain, ozone depletion, radiative balance, climate change), hydrosphere (land-based sea pollution, sea-based vessel pollution, transboundary groundwater diversion), lithosphere (hazardous waste disposal, toxic pollutants, decarification), biosphere (deforestation, endangered elephants, loss of tropical rainforests).

091:292 Labor Law 3 s.h. Federal law and its enforcement by judicial, administrative, arbitral tribunals relating to unionized employees and private firms; rights of employees to organize and engage in concerted activities and collective bargaining.

091:293 Law in American History I 3 s.h. American legal and social problems from early New England colonization until around 1880; interdisciplinary study. Same as 164:110.

091:294 Introduction to Roman Law 2-3 s.h. Overview of Roman civilization as framework for study of law; Roman constitution, sources of private law; selected elements of the Roman law of obligations; second life of Roman law—rediscovery, acceptance, and influence in Europe and beyond.

091:296 The Law of Insider Trading 1 s.h. Overview of insider trading law.

091:297 Law and Accounting 2-3 s.h. Accounting as the language of business; familiarization with the vocabulary of accounting, knowledge and skill development in using accounting information as an analytical tool.

091:298 English Legal System 1 s.h. Taught in spring London Law Consortium.

091:299 Genetics 2-3 s.h. How new genetic technologies are raising legal, ethical, social, and economic issues for individuals and the institutions that serve them.

091:300 Land Use Control 2-3 s.h. Zoning, comprehensive planning, provision of services, subdivision development ordinances, and their role in construction of local community; mechanics of various procedural devices, including changing zoning restrictions through variances, rezonings, contracts and conditional findings, initiative and referendum process, agreements by cities and developers pursuant to planning processes, coordination of control efforts; theory and doctrinal investigations contrasted with actual problems, results.

091:302 Estate Planning 2 s.h. Practical planning and drafting of policy issues related to wills, trusts, and other components of estate plans. Corequisite: 091:360 or 091:378.

091:303 Indigenous Peoples Under American Law 3 s.h. U.S. law regulating the Indigenous nations and Indigenous lands located within U.S. borders; American governmental power over Indian affairs, scope of tribal powers recognized by federal law, powers of states within Indian country, federal trust responsibility of Indigenous peoples, gaming and economic development. Prerequisite: senior standing. Same as 149:178.

091:304 Law in Asia in Transition arr. Development and reform of law and legal institutions in selected Asian countries, with focus on Vietnam and China; changing role of sustained constitutional law and the regulation of civil society nonprofit organizations, philanthropy, grassroots organizations and the state; supremacy and prosecution reforming socialist institutions and legal process; transformation of legal profession; struggle for authority of law in socialist transitional states; law and globalization of export labor; foreign models and donor support.

091:305 Mental Health Law 1-3 s.h. Legal implications of current medical concepts of mental disease and disorder; application of these medical concepts to legal problems such as civil commitment, mental illness, dangerousness, competency to refuse medical treatment.

091:306 The Law of Electronic Media 2-3 s.h. Legal and public policy issues in the operation and regulation of broadcasting, cable, and new technologies. Prerequisite: junior or senior standing.

091:307 Law in the Muslim World 2-3 s.h. International and comparative law issues relevant to countries in the Muslim world; legal cultures, institutions, rules, acts, processes of several jurisdictions including Afghanistan, Saudi Arabia, Iran, Iraq, Algeria, Egypt, Pakistan; Islamic sharia law as practiced in Sunni and Shi'ite countries; the role of church versus state, fundamentalism versus secularism, as manifested in the legal system; tension between communitarianism and individualism in modern constitutionalism; intertwining of customary and religious legal practices; civil, second, and third generations of human rights; international law on issues such as terrorism, self-determination; women's rights, including polygamy, divorce, child custody, inheritance.

091:308 Professional Responsibility 1-3 s.h. Public and private professional responsibility of lawyers; organization of the profession; its economics, ethics, and sociology.


091:312 Legislation arr. Mental health legislation, including recent reforms and proposals such as Kendra's Law, support commitment, and forced medication laws for persons with serious mental illness.

091:313 Indigenous Nations Law and Government 3 s.h. Law and governance of Indigenous nations within the United States. Prerequisite: senior standing. Same as 140:177.

091:314 Indigenous and Minority Peoples Under International Law 3 s.h. International law governing nonstate actors, including ethnic and racial minorities and indigenous peoples; sources of international law applying to minority and indigenous peoples, theories of majority-minority relations, efforts to develop positive international law to protect rights of minority and indigenous peoples. Same as 140:179.

091:315 Mediation: Theory and Practice 1-3 s.h. Essential characteristics; comparison of mediation with litigation and other alternative dispute resolution processes; stages of mediation; confidentiality; enforceability of agreement; ethical problems, particularly lawyer mediator.

091:317 Mediation Advocacy arr. The mediation process, role of the mediator; varied approaches to negotiating disputes, impasses in negotiation, use of mediation to break impasses and achieve settlement; preparing clients for mediation, effective advocacy in mediation.

091:318 Negotiating and Drafting Treaties of Intergovernmental Agreement arr. Practice and theoretical discussions in the interface between indigenous and immigrant peoples; experience negotiating and drafting crisis-remedying agreements, through simulated conflict scenarios. Same as 149:180.


091:321 Alternative Dispute Resolution Methods 1-3 s.h. Theory and practice of nonadversarial dispute resolution; introductory study.


091:323 Natural Resource Law 2-3 s.h. Evolution of patterns of law in response to resource scarcity and social demands.

091:324 Patent Law 2-4 s.h. All aspects of U.S. patent law; patent claims, adequacy of disclosure, statutory subject matter; validity, inequitable conduct, infringement, remedies, varied specialized doctrines; focus on recent pronouncements from the Court of Appeals for the Federal Circuit.

091:325 Philanthropy and the Law 3 s.h. Overview of law applicable to the American philanthropic sector; recent and potential legal issues in the interface between philanthropy and the law; comparative and international aspects of the regulation of philanthropy and the nonprofit sector. Same as 064:249.

091:326 Pensions, Disability, and Employee Benefits 3 s.h. Issues that arise from employer-sponsored benefit plans, typically in the context of employment and retirement practices, with emphasis on health, disability, tax, and securities laws, legal incentives, requirements, and restrictions on employer sponsorship of benefit plans and determinations of benefit entitlement, past and present.

091:327 Payment Systems 2-3 s.h. Basic law of modern payment systems; traditional law of negotiable instruments, bank collection law, rules governing consumer and commercial electronic payments; Articles 3, 4, and 4A of the Uniform Commercial Code, and varied federal regulations.

091:329 Products Liability 2-3 s.h. Negligence, warranty, strict liability tort theories for personal injury, property damage, or economic loss caused by defective products; focus on the expansion of liability of manufacturers, sellers, others.

091:330 Post-Communist Law of Russia and Eastern Europe 3 s.h. Developments since 1989 in the legal system of the Russian Federation; other postcommunist legal systems; main legal issues in converging a society from state socialism to competitive democracy and free markets; introduction to the current Russian legal system, overview of how communist legal systems are similar to or different from the Russian model.

091:332 Real Estate Transfer and Finance 3 s.h. Modern real estate transactions, including problems of real estate brokers, land-sale contracts, mortgages, insurance, conveying practices, title examinations, financing techniques, organization of real estate development ventures.

091:340 Remedies 3 s.h. Legal and equitable remedies by which the law corrects injustice and redresses legal wrongs; remedies for tortious wrongs.
091:611 Advanced Topics in Corporate Law
Topics related to the federal securities regime, such as securities litigation and enforcement regimes, insider trading issues, initial public offerings and due-diligence issues, lawyering issues and litigation and enforcement regimes, insider trading issues, initial public offerings;

091:622 Elder Law
Qualification for Medicaid, elder abuse and neglect,
discrimination in employment and elsewhere, retirement pension planning and taxable property rights in nursing homes, conservatorship and guardianship;

091:623 Critical Race Theory
Social, political, and legal writings on aspects of race in development and evolution of American law, how race permeates the fabric of our society, how institutions might be used to address social conditions involving commercial, constitutional, and criminal law;

091:624 Cyberspace Law Seminar
The wide range of public and policy issues created by the newly-emerging electronic technologies; focus on student research, writing, presentations, discussion;

091:625 Corporate Counseling and Managerial Perspective
Relationship between corporate counsel and clients, with focus on recent legal scholarship that attempts to view counsel and clients from the behavioral perspective and "business school" scholarship on organizational behavior and decision making—business-school case studies on management and decision making, and the lawyer's view; business and legal questions from both points of view.

091:626 Federal Antitrust Policy
Topics in federal antitrust law; cartels and other horizontal restraints of trade, measurement of market power, exclusionary practices by dominant firms, vertical restraints, the Robinson-Patman Act; public and private enforcement, remedies, history of antitrust policy; antitrust enforcement in particular markets, such as health care, computer technology, the learned professions. Prerequisite: a law or business antitrust course or consent of instructor.

091:627 Family Law in the World Community
Family law topics from an international and comparative law perspective; treatment of family law problems in various legal systems, application of international treaties and conventions to issues such as child custody, adoption, reproductive freedom, domestic violence. Prerequisite: 091:195 or 091:268 or consent of instructor.

091:629 A Dialogue Between Law and Philosophy
Legal and philosophical approaches to controversial issues such as abortion, affirmative action, euthanasia, hate speech, pornography. Same as 033:125.

091:630 History of the Legal Profession
History of Anglo-American legal profession;amatuer lawyers andAnglicisation of the law; there are no barristers in the United States; 19th-century professional reform in Britain; lawyers and changing trial practice; rise of the large firm; 20th-century changes in law education; growth of professional associations; rules to regulate conduct; Legal Realism and the Anglo-American legal profession; self-regulation, autonomy versus loyalty to clients, client behavior, legal ethics, group behavior.

091:632 Higher Education and the Law
Issues raised under the U.S. Constitution regarding state regulation of families; family and individual privacy, right to self-realization, distrust of government; importance of these foundations in selected areas—national security, violence, environmental circumstances; difference between concepts of law and justice.

091:633 International Criminal Law
How a single crime may occur in or harm more than one nation; questions addressed: when courts have jurisdiction, whose laws govern; when countries may apply their criminal law extraterritorially; collaborative enforcement; the International Criminal Court.

091:634 International Human Rights
Relationship between domestic law, particularly U.S. Supreme Court jurisprudence, and international law and human rights; emphasis on important international law issues, such as hate speech and use of death penalty.

091:635 Indigenous Peoples in the International Legal System
Historical and contemporary development of international law and institutions in relation to Native Americans, other indigenous peoples worldwide. Same as 149:176.

091:636 International Financial Institutions and Development
Experience creating an electronic handbook (e-book) on international finance, for laypersons and communities worldwide.

091:637 International Law and U.S. Domestic Law
Relationship between domestic and international law; issues affecting the practice of contract, property, criminal, and constitutional law in the United States; international treaties and structures that affect domestic law; arbitration, interjurisdictional differences, and the nation-state's capacity to implement public policy through its own courts and law.

091:638 International Commercial Arbitration
Arbitration as the global common law of commerce; arbitration from initiation to enforcement; questions that arise during proceedings; how to enforce arbitral awards, legal grounds on which national courts may refuse to enforce them.

091:639 International Human Rights and Child Labor
International human rights law and the worldwide problem of child labor, particularly the worst forms of child labor.

091:640 Individual, Family, and Social Institutions
The family and its members viewed from various perspectives, disciplines.

091:642 International Appellate Advocacy
Basic theories of public international law; student research on several advanced topics, preparation of memorials (briefs) on the topics, and arguments from the memorial; focus on development of an advanced understanding of the international legal system and an in-depth research and writing experience. Repeatable.

091:643 Freedom of Speech Seminar
Philosophical foundations—self-government, pursuit of truth, self-realization, distrust of government; importance of these foundations in selected areas—national security, violence, environmental circumstances; difference between concepts of law and justice.

091:644 Labor and Economic Relations
Studies of law and economic theories; participation in labor markets; role of labor in American life. Repeatable.

091:645 Labor, Law, Ethics, and Corporate Responsibility
Basic theories of international labor law relevant to labor rights; moral minimum labor requirements—health and safety standards, juvenile labor, gender equality, freedom of association, living wage provisions—from legal and business perspectives; legal obligations of businesses that operate in countries with legal and regulatory mechanisms that are different than those of the United States; difficulty of implementing elements of codes of ethics.

091:646 Non-Profit and Philanthropic Organizations
Legal regulation of philanthropic and nonprofit institutions; role, nature, and history of such institutions; tax exemption, tax treatment (including property and donor tax issues); political and legislative activities, and roles of members, directors, officers; problems of external regulation, accreditation, ethics; issues for community foundations, universities, development of philanthropic and nonprofit activity in selected Third World countries.

091:647 The Law of the Frontier: U.S. 1820-1870
How law really functioned at the edges of the nation's jurisdictional limits; earlier patterns of power, adjustments for environmental circumstances; difference between concepts of law and justice.

091:648 Law and Development
Use of law since the late 19th century to promote legal and economic development; spread of law reform in developing countries; role of foreign countries, multilateral agencies, bilateral agencies, other institutions in the law reform process; focus on American efforts abroad; activities by other countries, including developing countries.

091:650 Law, Health Policy, and Disability Center
Experience doing research and writing in areas of law and policy regarding rights of persons with disabilities; projects related to the UI Center of Law, Health Policy, and Disability Research. Prerequisite: 091:263 or consent of instructor.

091:654 Law, Politics, and the Family
Issues raised under the U.S. Constitution regarding state regulation of families; family and individual privacy, rights to marry, procreation rights, parents' and children's rights.

091:655 Legal System
Implementation of the citizen suit—a novel, experimental feature of modern environmental statutes; simulated initiation, defense of children from abuse and neglect.

091:656 Problems in International Business and Economic Relations
Legal aspects of contemporary problems in international business and economic relations; year-long seminar. Prerequisite: 091:282 or 091:287.

091:657 Ethical and Economic Realities of Legal Practice
Studies of lawyering in diverse work settings; lawyers' power over clients; practical judgment and intellectual prowess— their importance to professional effectiveness; ethics rules and practitioners' perceptions of economic realities; professional styles, self-identification of lawyers and the business of law and the influx of women, effect on adversarialism versus the "feminine ethic of care."
Three aspects of law’s efforts to govern military affairs: international law of war, U.S. law regulating foreign commitment of the nation’s military forces, rights of individual soldiers (particularly women, homosexuals, religious observers).

Two federal statutes designed to intervene in the free play of market forces in certain segments of the labor market: Fair Labor Standards Act, Migrant and Seasonal Agricultural Worker Protection Act.

091:657 L.L.M. Seminar arr.
Basic research and analytical methodologies for the international and comparative law fields; workshop approach to project proposals, drafts.

091:658 Seminar on the First Amendment arr.
Issues relating to the First Amendment’s establishment and free exercise guarantees, including validity of school vouchers, government endorsement of faith-based programs, the meaning of religion under the First Amendment, government encouragement of religion, religious exemptions from general law, the intersection of free speech and the religion guarantees, comparative treatment of religion in other constitutional systems. Repeatable. Prerequisite: 091:232.

091:659 Law and Lawyers in Literature arr.
Fundamental societal issues and ethical questions examined through discussion of literary works, including novels and plays by writers such as Camus, Coetzee, Dostoyevsky, Durrenmatt, Faulkner, Iben, Kafka, Melville, Schaffler, Thucydides.

091:660 Medical Seminar for Law Students arr.
Co-sponsored by Carver College of Medicine. Prerequisite: 1201:660.

091:661 Legal Issues: Intercollegiate Athletics arr.
Legal issues affecting college and university athletics and athletes; includes drug testing, recruiting, gender equity (Title IX), NCAA regulations, endorsement contracts, coaching contracts, trademark licensing, and broadcasting rights.

091:663 Problems of International Law arr.
Issues arising from contemporary problems of public international law; topics such as the law of use of force and armed conflict; international law relating to religious persecution, protection of minorities, the “girl child,” role of international organizations in peaceful settlement of disputes and in administration of justice.

National security powers of the federal government in national and international emergencies and crises; constitutional and statutory framework within which national security powers are exercised; conflicts between national security powers and individual rights, war powers and the rules of engagement; apprehension of foreign aliens through extradition or force; military tribunals and indefinite detentions of suspected terrorists, government practices in withholding information from the public and extracting critical information through extraordinary conduct, imposition of obligations on the United States under international law.

091:668 Mental Health Law Seminar arr.
Current issues in mental health law.

091:669 Research Seminar on Negotiations arr.
The compound processes of negotiation; in-depth investigation of specific real-world negotiations. Prerequisite: 091:342.

091:670 Patenting Complex Technologies arr.
Practicum on the patent acquisition process; how patent lawyers interact with their clients in a high technology setting, team project simulating the patent acquisition process. Prerequisite: 091:342.

091:671 Problems in Tax Research arr.
How to do tax research, research materials and exercises.

091:672 Punishment Theory Seminar arr.
Juristic, philosophical, sociological, and economic justifications for inflicting punishment; when, how, how much, and why we punish individuals for certain actions; who decides when and how much to punish—legislators, judges, parole boards, others.

091:673 Pea Bargaining and Sentencing Seminar arr.
Laws, policies, and practices relating to guilty pleas, plea bargaining, and sentencing under indeterminate and determinate (sentencing guidelines) regimes; readings in criminology, sociology, legal materials. Prerequisite: 091:206 or consent of instructor.

091:674 Poverty Law arr.
Income maintenance programs; case law and legislative policy regarding the poor.

091:675 Selected Issues in Family Law arr.
A particular issue or set of related issues in family law; relevant cases, statutes, scholarship.

091:676 Social Justice arr.
Social justice and what is at stake in the context of fundamental rights jurisprudence and social legislation; five approaches to social justice—libertarianism, utilitarianism, libertarianism, justice as fairness, equality of resources; questions of public policy from each point of view—employment insurance, unconditional basic income, universal health insurance, educational grants.

Sovereignty and self-determination rights of indigenous peoples of the Western Hemisphere, particularly the United States; legal, political, economic, and cultural institutions of indigenous societies; non-western legal and political institutions, strengths and weaknesses of American institutions. Same as 149:211.

091:680 Supreme Court Seminar arr.
Supreme Court practice, procedure, jurisdiction; the art of opinion writing, in-depth analysis of cases on the court’s pending docket; writing briefs, conducting research, conferencing cases sitting as a mock Supreme Court, assigning and preparing opinions, soliciting votes of colleagues; preparation of two opinions.

091:681 Health Law and Public Policy arr.
Issues in health law and policy relevant to organization, financing, and delivery of health care; modern practice of health care law involving government regulation of the health care industry.

091:685 Special Topics in Employee Benefits Law arr.
Remedies under ERISA—what equitable relief means after the Supreme Court’s decision in Great West Life cases, articles, treatises on remedies and restitution.

091:690 Transnational Business Disputes arr.
When representing or suing foreign enterprises, whose law applies to the case, when a judgment from one country is enforceable in another, how such issues affect choice of forum, and when a governmental defendant may assert sovereign immunity or act of state, questions that must be posed to foreign counsel, how the answers may be used.

Law Study Abroad

660:823 Program in Comparative Law in Bordeaux, France arr.
Intensive course work in France taught by professors from Iowa and France. Five-week courses in May and June.

Study abroad program for students from seven law schools (Iowa, Georgia, Utah, Kansas, Missouri-Columbia, Indiana-Bloomington, Chicago-Kent); American and British law taught by faculty drawn from the seven schools and British universities; clinical law program, work with British barristers and solicitors.
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Executive associate dean: Peter Densen
Senior associate dean: Allyn L. Mark
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The Roy J. and Lucille A. Carver College of Medicine, as an integral part of The University of Iowa, contributes to the educational programs of several thousand students—not only those in the University's health sciences colleges (medicine, dentistry, nursing, pharmacy, and public health) but also those in the life sciences areas of the College of Liberal Arts and Sciences and the health-related programs of the College of Engineering and other colleges. Additionally, it serves health professionals from throughout the Midwest who take part in a year-round program of continuing medical education, in which several thousand practitioners update their knowledge and skills through refresher courses, clinics, and conferences each year. It also expands and maintains educational and clinical opportunities in communities throughout the state and provides a statewide educational health care resource.

Beyond its academic responsibilities as the only college in Iowa that offers a curriculum leading to the M.D. degree, the Carver College of Medicine is concerned with broad public issues of distribution and organization of health care services. Its faculty members advise and serve on national, state, and regional health planning councils, health boards, and various health agencies; some faculty members also take part in the University's Center for Health Services Research.

The Carver College of Medicine is responsible for the associated medical sciences programs of education for physician assistants, clinical laboratory scientists (with tracks in cytogenetics and biotechnology), physical therapists, and nuclear medicine technologists.

Medical and associated medical science students have a number of opportunities to gain firsthand experience in physicians' offices and community hospitals. For medical graduates, the college offers seven University of Iowa-affiliated family practice residency programs in six cities throughout the state. The college promotes and sponsors experimental programs that demonstrate methods of organizing health services at the local level.

Accredited by the Liaison Committee on Medical Education of the American Medical Association and the Association of American Medical Colleges, the Carver College of Medicine meets the requirements of all state licensing boards. Its diploma admits the holder to all privileges granted to graduates of all medical colleges before such boards. All other professional programs administered by the college are accredited by their respective accrediting bodies.

**Graduate Programs**

The college offers programs leading to graduate degrees through the Doctor of Philosophy in anatomy and cell biology, biochemistry, microbiology, pharmacology, physiology and biophysics, free radical and radiation biology, and physical rehabilitation. The Doctor of Physical Therapy, a professional degree, also is offered. Faculty in the college also can participate in the interdisciplinary graduate programs in immunology, genetics, neuroscience, and molecular biology. In addition, graduate degree programs leading to a master's degree are offered in pathology, the physician assistant program, and physical therapy.

### Interdisciplinary Program in the Biosciences

The Graduate College and the Carver College of Medicine offer the interdisciplinary Biosciences Program, which gives graduate students the opportunity to become acquainted with basic molecular research in the Departments of Anatomy and Cell Biology, Biochemistry, Biological Sciences, Microbiology, Pharmacology, Physiology and Biophysics, and the Programs in Free Radical and Radiation Biology, Genetics, Immunology, Molecular Biology, and Neuroscience. The Biosciences Program offers graduate students flexibility during their first year of study, before they select the department or program in which they will earn their Ph.D.

For more information about the Biosciences Program, see the Graduate College section of the Catalog.

### Medical Scientist Training Program

The Iowa Medical Scientist Training Program (MSTP) is a combined M.D./Ph.D. program offered jointly by the Carver College of Medicine and the Graduate College. The program prepares trainees for careers in academic medicine, with emphasis on basic and clinical research. It provides an effective means for integration of graduate education and doctoral research with the full complement of clinical studies necessary for the medical degree. With a few exceptions, requirements for the combined M.D./Ph.D. degree program can be completed in seven to eight years of continuous study. For more detailed information, see "Medical Scientist Training Program" in the Catalog.

### Translational Biomedicine

The Carver College of Medicine offers a new translational medicine program at the master's and doctoral levels. For more detailed information, see “Translational Biomedicine” in the Graduate College section of the Catalog.

### Combined Degree Programs

Students who want to pursue the M.D. degree in combination with another degree program must gain admission to both the Carver College of Medicine and the other program and must make arrangements with the graduate department and with the medical college associate dean for student affairs and curriculum. Examples of combined degree programs are the M.D./M.P.H. with the College of Public Health, M.D./M.B.A. with the Tippie College of Business, and the M.D./J.D. with the College of Law.

### Doctor of Medicine

The Carver College of Medicine accepts 142 first-year students annually into its four-year course of study leading to the Doctor of Medicine (M.D.) degree.

### Basic Medical Sciences (First Three Semesters)

The first three semesters present a core of sciences basic to the study of medicine and introduce the student to the foundations of clinical practice.

#### First Semester

099:163 Medical Gross Anatomy includes complete dissection of the human body, stressing the relationship to the living system. Clinically relevant areas of anatomical radiology, surface anatomy, human embryology, and clinical correlations are included in lectures accompanying the dissection.

060:103 Medical Microscopic Anatomy includes histology and embryology of the major minor organs and systems.

060:104 Human Genetics presents concepts concerning the structure and function of the cell and its organelles at the molecular level. The course consists of basic science lectures and clinical correlations and relates basic cell biological concepts to the understanding and treatment of human disease.

070:110 Medical Genetics is integrated with ongoing classes in anatomy, biochemistry, and cell biology. It provides an overview of clinical and medical genetics, with particular emphasis on recent changes that affect clinical practice with respect to common diseases that have a genetic component.

050:162 Foundations of Clinical Practice I is the first semester of a four-semester sequence that introduces clinical skills essential for a practicing generalist physician.

The five major goals for students over the four-semester course are to develop knowledge, attitudes, and skills that are necessary for: maturation into a competent and confident clinician; maintaining a lifelong process of learning the practice of medicine; application of relevant basic science and clinical concepts and other scientific advances to the practice of medicine; application of the principles of health promotion and disease prevention to the practice of medicine; and increasing awareness of the ethical and social context in which medicine is practiced.

Through large group lectures, small case-based learning groups, and small-group skill building sessions, students focus on communication in the
Second Semester

**060:234 Medical Neuroscience** is a course for medical students, physical therapy students, and graduate students in the basic medical or related sciences. Through lectures, clinical correlate presentations, laboratories, and small group discussion sessions, the course emphasizes the interdisciplinary and integrated study of the human central nervous system. Its faculty is drawn from basic science and clinical departments.

**148:251 Principles of Medical Immunology** is offered by the interdisciplinary Immunology Program. Its goals are to teach basic components and mechanisms of the immune response as well as medical principles of normal and abnormal immunity. The course consists of lectures by Immunology Program faculty and small group case analysis sessions.

**050:240 Human Organ Systems** is an interdepartmental course that presents the normal structure (histology) and function [physiology] of human organ systems in a coordinated and integrated organ systems approach. The course is designed to emphasize structure/function relationships by integrating the microscopic anatomic and physiologic function of normal human organ systems. The course’s faculty includes members of basic science departments and clinical departments.

**050:163 Foundations of Clinical Practice II** is the second semester of a sequential, four-semester course that introduces clinical skills students need for becoming practicing primary care physicians (see 050:162 for overall course goals). In this semester, students continue to work toward course goals through small case-based learning groups, large-group lectures, and small-group skill acquisition sessions. They also are introduced to clinical medicine in a shadowing experience with health care providers. Principles of doctor-patient communication are reinforced and performance of the components of the general physical examination are taught and practiced. Multiculturalism, preventive medicine and health promotion, medical informatics, and the social context of medicine are included.

Third Semester

**071:105 Medical Pharmacology** bridges the clinical and basic sciences and provides students with principles that must be understood in order to describe properly the actions of drugs in patients.

**061:103 Principles of Infectious Diseases** presents a comprehensive approach to the microbiology and pathogenesis of infectious diseases at both the organism and molecular levels. The molecular aspects of pathogenesis are presented as the basis for present and future preventive and therapeutic measures. The laboratory is an important educational instrument, with hands-on experiments ranging from principles of aseptic technique to the most modern molecular aspects of diagnostic microbiology.

**069:204 General and Systemic Pathology** starts with general principles of disease: cell injury, inflammation, immune mechanisms, neoplasia, and hemodynamic disorders, followed by etiology, pathogenesis, epidemiology, and major clinical and morphologic manifestations of disease by organ systems. The course combines lecture information, small group analytic skills, and observation of current laboratory procedures.

**050:164 Foundations of Clinical Practice III** is the third semester of a sequential, four-semester course that introduces clinical skills students need for becoming practicing primary care physicians (see 050:162 for overall course goals). This semester continues the knowledge, attitude, and skill acquisition begun in the preceding two semesters. Students continue to learn through small patient-centered learning groups as well as lecture and clinical skill-building small groups. Content areas include human sexuality, biomedical ethics, and problem-specific medical history and physical exams. Students begin to apply clinical history taking and physical exam skills learned in preceding semesters by taking complete histories and performing physical exams on simulated and real patients.

Several elective courses are available to students during the third semester. These normally carry 1 or 2 s.h. of credit. Topics include areas not specifically covered in the regular curriculum and areas related to medical practice and the role of the physician. Course offerings vary from year to year, but typical subject areas are history of medicine in western society, international health, principles of family medicine, and spirituality and health.

Fourth Semester

**050:165 Foundations of Clinical Practice IV** is the final course in the foundation series. The fourth semester is devoted primarily to this major interdisciplinary course, which includes participation by a large proportion of the faculty and is vital in providing students with the tools for a lifetime of patient care.

Mornings are devoted to intensive review of the diagnostic and therapeutic aspects of organ system-based clinical medicine. The reviews are presented by teams of specialty and subspecialty clinicians. Students spend afternoons acquiring and practicing the clinician’s skills in history taking and physical examination and in learning specialized exams.

Each student is evaluated individually several times during the semester. Evaluations include the student’s approach to the patient, accuracy of history and physical examination, precision in communication data gathered, ability to synthesize available data into a realistic differential diagnosis, and ability to apply the process of problem-based learning to the understanding of patient-based problems. Cognitive knowledge of topics covered in the morning lecture sessions is assessed through computer-based multiple-choice examinations. Students who need further work are given guidance and assistance.

**050:182 Health Law** introduces issues in health care law, with emphasis on how law shapes the rights, duties, and obligations of patients and physicians and the nature of physician/patient/family relationships. Class sessions consist of lectures and interactive case-based discussion groups.

All M.D. students are required to pass Step 1 of the United States Medical Licensing Examination before they may be promoted to the third year of the curriculum.

Clinical Years (Third and Fourth)

The clinical courses take place during the last two years of the medical curriculum. In order to qualify for graduation with the M.D. degree, students must complete satisfactorily a total of 81 weeks of courses during the two clinical years: 69 weeks of required courses and 12 weeks of electives. Course distribution is 49 weeks in the first clinical year and 32 weeks in the second.

“Clinical Beginnings,” a required week-long orientation to the generalist core clerkships, takes place immediately before the start of the clinical courses. Content includes an orientation to the clinical courses; introduction to acute trauma management, with laboratory exercises for development and application of important skills; technical skill laboratories that emphasize basic procedures important for clinical courses; simulated patient exercise about communication of bad news; simulated patient assessment of the core physical examination (students must demonstrate competence at a predetermined level; remediation is required for those who do not achieve the required level of competence); and student-developed seminars concerned with personal and professional activities in the clinical courses. The Student Clinician Ceremony completes the week’s activities.

The required clerkships are as follows.

**Seven generalist core clerkships:** Internal medicine, obstetrics and gynecology, pediatrics, surgery, and an ambulatory practice curriculum including outpatient internal medicine, community-based primary care, and family practice preceptorship; each course includes a mix of inpatient and outpatient activities, introduces the student to a specific discipline or to the practice of medicine in the community, and presents the opportunity to develop and practice clinical skills.

**Required subspecialty clerkships:** Anesthesia, dermatology, neurology, ophthalmology, orthopaedics, otorlaryngology, psychiatry, radiology, and urology, and courses in laboratory medicine and electrocardiography.

**Advanced clerkships:** Subinternship, in which the student assumes responsibility for managing patients in a variety of approved medical disciplines, supervised by a senior resident and a faculty physician; emergency room or intensive care rotation.

Three electives: electives chosen from clerkships listed in the course book distributed by the Carver College of Medicine.
First Clinical Year Course Requirements

All medical students must complete satisfactorily 49 weeks of courses, including Clinical Beginnings, 36 weeks of generalist core clerkships and 12 weeks of courses chosen from the required subspecialty clerkships.

Second Clinical Year Course Requirements

All medical students must complete satisfactorily 32 weeks of clerkships chosen from those not completed in the first clinical year, including the required subspecialty clerkships, the advanced clerkships, and electives.

Although the primary venues for clinical training of medical students are the University of Iowa Hospitals and Clinics and the Iowa City Veterans Affairs Medical Center, the family practice preceptorship and the community-based primary care clerkship are off-campus rotations. Some other courses may be assigned to off-campus sites, as well.

Financial Aid

The Carver College of Medicine's philosophy is that no student should be denied a medical education due to a lack of funds. Admissions decisions at the Carver College of Medicine are made without consideration of financial need. Therefore, the Carver College of Medicine financial aid staff actively seeks financial aid sources so every student interested in a medical education can finance that education.

Financial assistance is provided by the Carver College of Medicine primarily on the basis of demonstrated financial need. Although a limited number of collegiate or institutional grants are available for the most economically disadvantaged students, most aid is in the form of loans. Examples of federal loan programs are the Federal Direct Stafford/Ford Student Loan, the Federal Direct Unsubsidized Stafford/Ford Student Loan, the Federal Perkins Loan, and the Primary Care Loan (PCL). Students also may qualify for private loans to supplement their financial aid package.

In addition, the college supports scholarship and loan programs through permanent endowments and/or contributions from alumni and friends of the Carver College of Medicine. These funds are administered by the college's financial aid office and are awarded as a part of a student's total financial aid package. Funds to support short-term emergency loans are available for students with immediate financial need.

A small number of recruitment scholarships are awarded by the college's admissions office to highly qualified candidates on the basis of their academic excellence, leadership abilities, and the enrichment they will bring to the college. Recruitment awards are included in the recipient's overall financial aid package.

Information and advice concerning financial aid are available through the Carver College of Medicine Office of Student Affairs and Curriculum financial services department.

Admission to the M.D. Program

The Carver 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. AMCAS applications are available for completion in May 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 deadline for AMCAS processing is November 1.

Final applications are forwarded to applicants whose AMCAS applications pass a review conducted by the college. A $50 fee must accompany the final application from all applicants.

Admitted applicants also must file with the University's Office of Admissions an official transcript from each college they have attended.

Technical Standards for Admission and Retention

The Carver College of Medicine seeks candidates who best will be able to serve the needs of society and strives to graduate skilled and effective physicians. To achieve this goal, the following principles and technical standards will be applied to candidates for admission and continuing students.

Principles

Technical standards refer to criteria that go beyond academic requirements for admission and are essential to meeting the academic requirements of the program.

Students, with or without disabilities, applying to and continuing in the college will be expected to meet the same requirements.

Matriculation and continuation in the college assume a certain level of cognitive and technical skill. Medical students with disabilities will be held to the same fundamental standards as their nondisabled peers. Although not all students should be expected to gain the same level of proficiency with all technical skills, some skills are so essential that mastery must be achieved, with the assistance of reasonable accommodations where necessary.

Reasonable accommodations will be provided to assist in learning, performing, and satisfying the technical standards.

Every reasonable attempt will be made to facilitate the progress of students where it does not compromise collegiate standards or interfere with the rights of other students and patients.

Technical Standards

Applicants for admission to the Carver College of Medicine and continuing students must possess the capability to complete the entire medical curriculum and achieve the degree. To this end, all courses in the curriculum must be completed successfully. In order to acquire the knowledge and skills to function in a broad variety of clinical situations and to render a wide spectrum of patient care, candidates for the M.D. degree must have abilities and skills in five areas, including observation; communication; motor; intellectual, conceptual, integrative, and quantitative abilities; and behavioral and social attributes.

Technological compensation can be made for some disabilities in certain of these areas, but a candidate must meet the essential technical standards in such a way that he or she will be able to perform in a reasonably independent manner. The use of a trained intermediary is not acceptable in many clinical situations as it implies that a candidate's judgment must be mediated by someone else's power of selection and observation.

Continuing students in the college are held to the same technical standards.

Observation: Students must have the functional ability to observe demonstrations and experiments in the basic sciences and must have sufficient use of the senses necessary to perform a physical examination.

Communication: Students must be able to relate reasonably to patients and establish sensitive, professional relationships with patients, colleagues, and staff. They are expected to communicate the results of the history and examination to the patient and to their colleagues with accuracy, clarity, and efficiency.

Motor: Students are expected to participate in basic diagnostic and therapeutic maneuvers and procedures. Those who cannot perform these activities independently should be able to understand and direct the methodology involved in such activities.

Intellectual, conceptual, integrative, and quantitative abilities: Students must be able to learn to analyze, synthesize, solve problems, and reach reasonable diagnostic and therapeutic judgments. Students are expected to be able to display good judgment in the assessment and treatment of patients. They must be able to learn to respond with prompt and appropriate action in emergency situations.

Behavioral and social attributes: Students are expected to be able to accept criticism and respond with appropriate modification of their behavior. Students also are expected to possess the perseverance, diligence, and consistency necessary to complete the medical school curriculum and enter the independent practice of medicine within a reasonable time frame. They must demonstrate professional and ethical demeanor and behavior in all dealings with peers, faculty, staff, and patients.

Applicants who may not meet these standards are encouraged to contact the college's director of admissions.

Requirements

Applicants for admission to the Carver College of Medicine must have received the baccalaureate degree, or they must be in a degree program and have earned at least 94 s.h. of credit, or the equivalent, and expect to receive the degree before enrolling. They must have satisfied the following requirements, all taken with appropriate laboratories.
Physics: a complete introductory course (one year)

Mathematics: college algebra and trigonometry, or advanced college mathematics for applicants who completed college algebra and trigonometry in high school

Chemistry: at the minimum, a complete introductory course in organic chemistry (one year), ordinarily following a complete introductory course in modern general chemical principles

Biological sciences: a complete introductory course in principles of biology, or zoology and botany (one year), and an advanced biology course (one semester or quarter)

Fulfillment of the specific requirements for admission does not ensure admission to the college. From applicants meeting the requirements, the college’s admissions committee selects those who appear to be best qualified for the study and practice of medicine.

To be considered for admission, applicants must have a g.p.a. of at least 2.50 for all college work. Where courses are available on a graded or pass/fail basis, it is expected that applicants will have taken the required science courses for a grade.

Preference is given to applicants with high scholastic standing who are residents of Iowa. Consideration also is given to outstanding nonresidents.

Applicants are required to take the Medical College Admission Test (MCAT) no earlier than five years prior to, and no later than August of, the year of application. Students register for this examination through the AAMC web site (http://www.aamc.org).

Personal interviews are an integral part of the admission process. Candidates invited for an interview are contacted by the admissions committee.

Applicants accepted on or before February 15 must submit an advance payment of $50 by March 1. Applicants accepted after February 15 must submit this payment within two weeks after they receive notification of acceptance. The advance payment is credited toward tuition and fees.

All students entering the Carver College of Medicine are required to comply with the pre-entrance and annual health screening program developed by the Student Health Service in cooperation with the University of Iowa Hospitals and Clinics.

All registered Carver College of Medicine students are required to maintain health insurance (or an equivalent care plan) sufficient to satisfy minimum standards of coverage, in order to attend classes. Insurance coverage must be maintained continuously throughout each year of attendance at The University of Iowa.

Student Policies and Procedures

Student Promotion

The Carver College of Medicine has established promotion policies and procedures to ensure that each of its graduates has adequate skills, knowledge, judgment, ethical standards and personal integrity to assume the responsibilities of a medical doctor. The student promotions committee, made up of six faculty members and two students, performs these duties with the cooperation, advice, and judgment of course directors, faculty members, students, and administrators.

The committee recommends specific actions to be taken in any case in which a student’s skills, knowledge, judgment, or ethical behavior is in any way considered consistently marginal or unsatisfactory. Possible recommendations by the committee include immediate dismissal of the student from the college; requiring the student to repeat all or any part of the current or academic probation; and allowing the student to continue on academic probation with a full or partial course load. These recommendations are then forwarded for action to the senior associate dean of the Carver College of Medicine.

Medical students have the right to appeal a promotion decision. They must submit the appeal in writing to the Carver College of Medicine’s senior associate dean within one week of notification of the decision. Appeals are considered by the Appeals Committee, made up of faculty representatives of the Medical Council and the Executive Committee, a medical student, a lay member, and the associate dean for student affairs. Students may request an opportunity to appear before the Appeals Committee to make a statement and answer questions. The committee then makes its recommendation to the dean of the college, who is the final authority.

Specific information about student promotion policies and procedures is available in the Medical Student Affairs Office and is published annually in the Medical Student Handbook. The handbook is available online; see the college’s web site.

Leaves of Absence, Withdrawal, Reinstatement

The Carver College of Medicine has established policies regarding leaves of absence, dropping courses, withdrawal from the college, and reinstatement to the college. Information about each of these policies is available at the college’s Office of Student Affairs and Curriculum and is published annually in the Medical Student Handbook.

Disputes and Complaints

Student complaints concerning actions of faculty members or departments are pursued first through mechanisms established in the Carver College of Medicine. These procedures allow the greatest flexibility for all concerned in resolving a conflict. They are intended for situations such as grading disputes, alleged academic dishonesty, alleged dishonesty during a clinical rotation, alleged unethical or unprofessional conduct, and perceived discrimination or harassment.

Complaints regarding sexual harassment are handled confidentially in accordance with University policy and procedures (see “Policy on Sexual Harassment” in the Catalog). Information concerning the established informal mechanisms is available in the Medical Student Affairs Office and is published annually in the Medical Student Handbook.

Faculty

Nearly all Carver College of Medicine faculty members are full-time. Their work in practice and research is part of—not apart from—their teaching. Many have earned national and international honors.

Interdisciplinary Programs, Centers

The college’s interdisciplinary programs and centers draw strength from college faculty members and the facilities available to them, without regard to departmental units or to the distinction between graduate and postgraduate training. Further information is available from the associate dean for research and graduate programs.

The following centers are subdivisions of the Carver College of Medicine.

General Clinical Research Center

The General Clinical Research Center is the focal point at The University of Iowa for interdisciplinary programs in clinical investigation. It provides a physical and intellectual environment in which clinical investigation can be conducted with maximum cooperation, advice, and judgment of course teaching. Many have earned national and international honors.

Mental Health Clinical Research Center

The major emphasis of the Mental Health Clinical Research Center is the study of schizophrenia. The center provides the facilities for research linking the clinical picture of the illness with its underlying neurobiology. The center’s seven research units conduct the necessary integrative and interdisciplinary research to advance knowledge about the disease.

Cardiovascular Research Center

The Cardiovascular Research Center coordinates research and training programs related to cardiovascular diseases. It encompasses several
federally and nonfederally funded programs: Program—Project Grant on Integrative Functions in Neurovascular Control, the Specialized Center of Research (SCOR) in Coronary and Vascular Diseases, SCOR in Occupational and Immunologic Lung Disease, Program—Project Grant on Cerebral Blood Vessels, SCOR in Hypertension, SCOR in Congenital Heart Disease, SCOR in Cystic Fibrosis, Cystic Fibrosis Foundation Research and Development Program, Program—Project Grant on Gene Therapy for Cystic Fibrosis Lung Disease, Cystic Fibrosis Foundation Gene Therapy Center, and Training Center for Clinical Management of Lipid Disorders. It also coordinates several training programs and a coordinated program of other interdisciplinary research supported by a number of individual project grants.

The center occupies two floors of cardiovascular research laboratories and administrative offices in the Medical Research Center.

**Holden Comprehensive Cancer Center**

The Holden Comprehensive Cancer Center (HCCC) coordinates the efforts of University of Iowa faculty and staff in research, education, and demonstration programs related to all aspects of cancer. The HCCC is recognized by the National Cancer Institute as an NCI-designated cancer center and has “comprehensive” status, a designation that recognizes research scientists, physicians, and other health care professionals for their roles in treating and caring for patients with cancer.

**Alzheimer’s Disease Research Center**

This center studies Alzheimer’s disease and related neurological conditions from the viewpoint of neuroanatomy, neuroimaging, neuropsychology, and neurochemistry. The center’s purposes are to improve the diagnosis and treatment of these conditions, to disseminate information on new research to the public, and to contribute to a better understanding of the neural basis of cognition.

**Center for Macular Degeneration**

The Center for Macular Degeneration was organized to prevent the devastating consequences of macular degeneration in the majority of people at risk. For those already affected by the disease, the center works to develop sight-saving medical, pharmacological, and surgical treatments.

**Education and Patient Care Facilities**

First- and second-year classes are taught in the Bowen Science Building, the Medical Education Building, the Medical Laboratories, and in classrooms and conference rooms of University of Iowa Hospitals and Clinics. The new 214,000-square-foot Medical Education and Biomedical Research Facility, which opened in Fall 2001, houses the preclinical medical curriculum.

The Hardin Library for the Health Sciences is a vital resource centrally located on the health sciences campus.

Students acquire clinical experience in the 769-bed University of Iowa Hospitals and Clinics complex, in the 93-bed Veterans Affairs Medical Center (including observation beds), and in affiliated hospitals and ambulatory care centers throughout the state.

Faculty members of the Carver College of Medicine and the College of Dentistry make up the 748-member clinical staff at University of Iowa Hospitals and Clinics, whose 18 clinical services are directed by the heads of the corresponding academic departments in those colleges. These faculty members also provide instruction for the 467 resident physicians and dentists and the 167 fellows who make up the house staff of the hospitals and clinics, where facilities are provided for teaching all major medical specialties, for residencies in all such specialties, and for fellowships in a number of subspecialties.

University of Iowa Hospitals and Clinics serves as a tertiary care center for the state of Iowa and portions of adjoining states, with most patients being referred for care and treatment not readily available in their home communities. For details about University of Iowa Hospitals and Clinics, Veterans Affairs Medical Center, and related academic and health service units, see “The University of Iowa Health Sciences Campus” in the Catalog.

**Research Facilities**

The Medical Education and Biomedical Research Facility, opened in 2001, has expanded state-of-the-art education and biomedical research laboratory space in the college. The Eckstein Medical Research Building, which opened in 1989, was designed to provide flexible research space that rapidly adapts to the changing needs of interdisciplinary research activities. The facility serves interdisciplinary groups of faculty scientists, each of whom is researching a basic science problem at the advancing edge of science, and enables them to conduct research in close proximity to other select researchers. In order to accomplish this, the facility’s laboratories have been designed to accommodate a wide range of research. The spaces, mechanical systems, and available support services offer the greatest flexibility and adaptability for current and future research.

Other buildings housing research labs include Medical Laboratories, Bowen Science Building, Medical Education Building, Medical Research Facility, and Medical Research Center. Labs also are located at the University’s Oakdale Campus. A number of facilities that support the research and teaching endeavors of the college’s faculty are administered through the dean’s office.

University of Iowa research facilities housed in the Medical Education and Biomedical Research Facility, the Nuclear Magnetic Resonance Facility, the High-Resolution Mass Spectrometry Facility, the Image Analysis Facility (Research Technologies), the Large-Scale Fermentation Facility, the Molecular Analysis Facility, the Tissue Culture/Hybridoma Core Facility, and the Transgenic Animal Facility.

The Office of Consultation and Research in Medical Education is made up of education specialists in a broad range of areas who serve the faculty, staff, and administration of all Carver College of Medicine programs. The office provides educational consultation, initiates and cooperates in educational research endeavors, and conducts faculty development activities.

**Courses**

**Medicine Nondepartmental**

- 050:001 Medical Elective  arc
- 050:003 Clinical Clerkships  arc
- 050:005 Medical Student Research Fellowships  0 s.h.
- 050:006 Doris Duke Clinical Research Fellowship  0 s.h.

**Carver College of Medicine**

- 050:162 Foundations of Clinical Practice I  5 s.h.
- 050:163 Foundations of Clinical Practice II  5 s.h.
- 050:164 Foundations of Clinical Practice III  7 s.h.

**Alzheimer’s Disease Research Center**

- 050:165 Foundations of Clinical Practice IV  arc
- 050:166 History of Medicine in Western Society  2 s.h.
- 050:167 Readings in Biomedical Ethics  arc

**Center for Macular Degeneration**

- 050:165 Foundations of Clinical Practice IV  arc

**Education and Patient Care Facilities**

- 050:166 History of Medicine in Western Society  2 s.h.
- 050:167 Readings in Biomedical Ethics  arc

**Research Facilities**

- 050:165 Foundations of Clinical Practice IV  arc
- 050:166 History of Medicine in Western Society  2 s.h.
- 050:167 Readings in Biomedical Ethics  arc

**Courses**

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**Center for Macular Degeneration**

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- 050:166 History of Medicine in Western Society  2 s.h.
- 050:167 Readings in Biomedical Ethics  arc

**Courses**

**Medicine Nondepartmental**

- 050:001 Medical Elective  arc
- 050:003 Clinical Clerkships  arc
- 050:005 Medical Student Research Fellowships  0 s.h.
- 050:006 Doris Duke Clinical Research Fellowship  0 s.h.
050:190 Introduction to Medical Education at Iowa
0 s.h.
Advanced concepts in anatomy, biochemistry, biostatistics, and cell biology relevant to clinical reasoning, for nontraditional medical students.

050:195 Community Health Outreach I
0 s.h.
Presentations, patient-based learning groups, readings, and practical experience working with agencies that provide health care and wellness promotion to communities; substance abuse; child, adolescent, and adult health; aging; interpersonal violence; homelessness.

050:196 Community Health Outreach II
1-2 s.h.
Presentations, patient-based learning groups, readings, and practical experience working with agencies that provide health care and wellness promotion to communities; substance abuse; child, adolescent, and adult health; aging; interpersonal violence; homelessness.

050:197 Community Health Outreach III
1-2 s.h.
Presentations, patient-based learning groups, readings, and practical experience working with agencies that provide health care and wellness promotion to communities; substance abuse; child, adolescent, and adult health; aging; interpersonal violence; homelessness.

050:198 Community Health Outreach IV
2 s.h.

050:203 Clinical Dietetics
1 s.h.
Nutritional aspects of health and disease, with emphasis on medical nutrition therapy; human nutrition in the clinical care as it relates to physiology and biochemistry.

050:211 MSTP Research
arr.

050:212 MSTP Clinical Connections
1 s.h.
Experience in medical interviewing, physical examination, patient presentation through interactive computer-based learning or direct patient interaction with physician-scientist preceptor. Prerequisite: enrollment in graduate phase of medical student training program.

050:220 Patient-Oriented Research Didactic
3 s.h.
Topics relevant to research design and data analysis, including principles of study design; selection, development, and testing of hypotheses; significant quantitative and qualitative research methods. Prerequisite: consent of instructor. Same as 173:151.

050:222 Advanced Statistical Methods for Clinical Research
3 s.h.

050:223 Seminar in Clinical Research
1 s.h.
Presentation of ongoing research projects and methodology in patient-oriented clinical research. Repeatable. Prerequisite: 050:220 and participation in Clinical Investigation Training Program or consent of instructor.

050:224 Seminar in Translational Biomedicine
1 s.h.
Student research presentations, journal club, invited speakers.

050:225 Translational Biomedical Research
arr.
Student research guided by mentor.

050:226 Quality Improvement in Health Care Systems
arr.
Preparation for leading continuous quality improvement programs in health care organizations; varied quality improvement techniques. Prerequisite: consent of instructor.

050:228 K30 Preceptor Research
arr.
Academic credit for the mentored research project required of trainees in the Graduate Training Program in Clinical Investigation. Prerequisite: consent of instructor.

050:229 Ethical Issues in Clinical Research
1-3 s.h.
Ethical and legal issues in the conduct of clinical research; ethics, law, and history of medical research; Turgeekay study; core values of biomedical research; IRB, investigator (doctor/patient relationship, conflicts of interests; privacy and confidentiality; vulnerable populations and research; cross-cultural issues; community participation; study design; authorship and peer review; data acquisition, sharing, and cooperative science; legal and ethical prohibitions on research misconduct; communicating science; integrity in clinical research. Prerequisite: GTPS1 scholarly standing or consent of instructor.

050:240 Human Organ Systems
8 s.h.
Microscopic structure and function of major and specialized human organ systems; approach integrating normal microscopic anatomy and human physiology. Prerequisite: medical student standing.

050:270 Responsible Conduct in Research
0 s.h.
Ethical issues, misconduct and fraud; proper handling of data and responsibility, conflict of interest; research on animals and human subjects. Prerequisite: consent of Carver College of Medicine.

050:280 Medicine, Narrative, and Poetics
arr.
Insights, freedom, and challenges of a life in medicine; reading, discussion, individual creative writing.

050:281 Global Health Issues
1 s.h.
Global health topics; theoretical structure for interpreting global health care issues; for medical students.

050:282 Global Cross-Cultural Clerkship
arr.
Cross-cultural medical program at an international site; focus on health care problems of a specific community; individual educational objectives set in advance.

050:283 Health Informatics I
3 s.h.
Technological tools that support health care administration, management, and decision making. Prerequisite: graduate standing or consent of instructor. Same as 06X:225, 021:275, 051:187, 050:186, 074:191, 096:283, 174:226.

050:995 Individual Project: Medical History
arr.
Arranged by student with department's approval.

Hospital/Certificate Programs

The following courses are conducted by University of Iowa Hospitals and Clinics staff.

670:901 Radiologic Technology Program
0 s.h.
Patient care and ethics, radiographic positioning, radiographic critique, medical terminology, radiologic physics, anatomy and physiology, radiographic technique, computer technology, radiation biology, radiographic processing, imaging equipment, quality assurance; supervised clinical education; two-year program; national certification examination required at completion.

671:992 Orthopots Program
0 s.h.
Clinical science of bionocular vision, ocular motility, and related eye disorders; practical, theoretical training in the Department of Ophthalmology and Visual Sciences two-year program; written, oral and practical national board examinations required at completion. Prerequisite: bachelor's degree with specific class recommendations.

672:803 Radiation Therapy Program
arr.
Theory and techniques of radiation therapy technology; emphasis on areas of oncology treatment planning, treatment set up, dosimetry, use of megavoltage radiation-producing equipment to administer treatment. Prerequisite: completion of radiologic technology program and eligibility for registration with a national certification program.

672:903 Radiation Therapy Program
0 s.h.
Theory and techniques of radiation therapy technology; emphasis on areas of oncology treatment planning, treatment set up, dosimetry, use of megavoltage radiation-producing equipment to administer treatment; one-year program ending in eligibility for national certification examination in radiation therapy. Prerequisites: graduation from an accredited radiography program and eligibility for registration with a national certification program.

673:804 Diagnostic Medical Sonography Program
arr.
Principles and methods in using ultrasound as an imaging modality; abdomen, obstetrics and gynecology, neurosonography, and vascular technology specialties; 18 month program; national certification required at completion. Prerequisite: completion of an allied health program or bachelor's degree with course work in physics, anatomy, patient care, and algebra.

673:805 Diagnostic Medical Sonography Clinical
arr.
Prerequisite: completion of an allied health program or bachelor's degree with course work in physics, anatomy, patient care, and algebra. Prerequisite: national certification examination required at completion. Prerequisite: completion of an allied health program or bachelor's degree with course work in physics, anatomy, patient care, medical technology, and algebra.

673:905 Medical Sonography Clinical Course
0 s.h.
Prerequisite: completion of an allied health program or bachelor's degree with course work in physics, anatomy, patient care, medical technology, and algebra.

673:911 Diagnostic Cardiac Sonography
0 s.h.
Principles, methods in using ultrasound; specialties including adult and stress echocardiography; six-month program; national certification examination required at completion of program. Prerequisite: completion of an accredited medical sonography or vascular technology program.

673:912 Cardiac Sonography Clinical Course
0 s.h.
Using ultrasound as an imaging modality, specialization, including adult echocardiography, stress echocardiography; six-month program; national certification examination required at completion. Prerequisite: completion of an accredited medical sonography or vascular technology program.

674:806 Magnetic Resonance Imaging Program
arr.
Procedures and pathophysiology; physics, advanced section anatomy, instrumentation, supervised clinical education; nine-month program; national recognition examination recommended at completion of program. Prerequisite: completion of radiologic technology program.

674:807 Magnetic Resonance Imaging—Clinical
Prerequisite: completion of radiologic technology program.

674:906 Magnetic Resonance Imaging Technology
arr.
Procedures, pathophysiology, physics, advanced section anatomy, instrumentation, supervised clinical education; nine-month program; national recognition examination recommended at completion. Prerequisite: completion of radiologic technology program.

675:809 Cardiovascular Interventional—Clinical
Prerequisite: completion of radiologic technology program.

675:808 Cardiovascular Interventional Program
arr.
Imaging equipment, intervention, techniques, digital angiography, vascular anatomy and physiology, pharmacology, sterile techniques, cardiac monitoring; six month program; national recognition examination recommended at completion of program. Prerequisite: completion of radiologic technology program.

675:909 Cardiovascular Interventional—Clinical
Prerequisite: completion of radiologic technology program.

676:810 Computed Tomography Program
arr.
Sectional anatomy, procedures and pathiology, physics and imaging, introduction to multidetector CT, physiologic and 3-D imaging, CT simulation; six-month program; national recognition examination recommended at completion of program. Prerequisite: completion of radiologic technology program.

676:813 Computed Tomography—Clinical
Prerequisite: completion of radiologic technology program.

676:910 Fellowship in Computed Tomography
0 s.h.
Sectional anatomy, procedures and pathobiology, physics and imaging, introduction to multidetector CT, physiologic and 3-D imaging, CT simulation; six-month program; national recognition examination recommended at completion of program. Prerequisite: completion of radiologic technology program.

676:913 Computed Tomography Clinical
Prerequisite: completion of radiologic technology program.

677:101 Emergency Medical Technician—Paramedic
0 s.h.
Preparation for role of entry-level paramedic: comprehension, application, and evaluation of the clinical role; demonstration of technical proficiency in all required skills; demonstration of personal behavior consistent with professional and employer expectations. Prerequisite: certification as an emergency medical technician—basic.

677:102 Emergency Medical Technician—Paramedic
0 s.h.
Preparation for role of entry-level paramedic: comprehension, application, and evaluation of the clinical role; demonstration of technical proficiency in all required skills; demonstration of personal behavior consistent with professional and employer expectations. Prerequisite: 677:101.
ANATOMY AND CELL BIOLOGY

Interim Head: John F. Engelsmeier
Professor Emeritus: Ronald Bergman
Associate Professors: Jackie Bickenbach, Robin L. Davison
Assistant Professors: Robert A. Cornell, Michael R. Rebagliati, Charles A. Yeaman
Lecturers: Kathleen Andersen, SueAnn Thompson
Associate: Marc Pizzimenti
Graduate Degrees: Ph.D. in Anatomy and Cell Biology
Web site: http://www.anatomy.uiowa.edu

The department performs three major functions: teaching human anatomy to students preparing for careers in the health care professions; providing advanced courses, teaching experience, and research training to graduate students preparing for careers in academic research and related scientific fields; and conducting original research into biological structure and function-fungeth relationships.

Preclinical Study

The department contributes to the preclinical education of health care professionals by providing major courses in gross anatomy, cell biology, histology, and neuroscience. The department participates in the Carver College of Medicine's Medical Scientist Training Program and the Graduate College's Biosciences, Molecular Biology, and Neuroscience Programs.

Doctor of Philosophy

Students in the Ph.D. program work directly for the doctorate without an intermediate master's program. They complete courses focused in one of three major areas (molecular medicine, cell biology, and developmental biology, or neurobiology), in addition to related background and elective courses. Students also teach in lecture and laboratory courses under faculty supervision. The program may be completed in four to five years of intensive, full-time residence.

During the first year, students rotate through two or more faculty research laboratories. They choose a research area and become affiliated with a faculty member, who acts as their major adviser. By the end of the second year, students undertake the comprehensive examination, define a research problem with their major adviser, and formulate a research prospectus. The comprehensive examination assesses students' ability to analyze, organize, and apply the information, concepts, and skills acquired in the first two years of the program. Subsequent years are devoted primarily to research.

The final examination for the Ph.D. consists of a public oral defense of the dissertation. The dissertation is based on original research conducted with the guidance of the major adviser and at least four other faculty members on the thesis committee.

Admission

Applicants for admission to the Ph.D. program in anatomy and cell biology should have undergraduate preparation including college mathematics through calculus, one year of organic chemistry, one year of general physics, and at least two upper-level courses in biological sciences. For admission requirements and information about graduate studies at Iowa, see the Manual of Rules and Regulations of the Graduate College, or contact the Graduate College. In addition to taking the Graduate Record Examination (GRE) General Test, applicants to the Ph.D. program in anatomy and cell biology are strongly encouraged to take the Graduate Record Examination Subject Test in Biology or their major undergraduate area.

Financial Support

Financial aid is awarded on a competitive basis to students admitted to the Ph.D. program. Applications for aid should be completed concurrently with the admissions application.

Facilities

The department occupies more than 35,000 square feet in the Bowen Science Building on the health sciences campus. These quarters house modern teaching facilities and well-equipped research laboratories. The most modern instrumentation is available, including facilities and equipment for microscopic digital imaging, confocal microscopy, autoradiographic studies, molecular biological techniques, spectrophotometers, cryostats, tissue culture and protein chemistry, and automated gamma/beta counting systems. Through collaborative programs with the Holden Comprehensive Cancer Center, Cardiovascular Research Center, and Alzheimer's Disease Research Center, faculty and students also have access to outstanding research facilities throughout the University of Iowa Health Sciences Campus.

Courses

060:001 Principles of Human Anatomy 3 s.h.
Gross and microscopic human anatomy; systemic approach to all body areas, with emphasis on clinical relevance. Offered fall and spring semesters. Prerequisites: 002:010 and 002:011, or equivalents; and pharmacy, pre-nursing, or associate medical sciences major.

060:101 Human Gross Anatomy for Dental Students 6 s.h.
Regional dissection, lectures, demonstrations, with emphasis on head and neck; neuromatomy. Offered spring semesters. Prerequisites: graduate standing and consent of instructor.

060:103 Medical Gross Human Anatomy 6 s.h.
Regional dissection, lectures, demonstrations, tutorials, discussions; clinically relevant areas of anatomical radiology, surface anatomy with clinical correlations. Offered fall semesters. Prerequisite: medical student standing.

060:108 Human Anatomy 5 s.h.
Regional dissection, lectures, demonstrations, with emphasis on areas important to physical therapists. Offered fall semesters. Prerequisite: physical therapy student standing or consent of instructor.

060:111 Gross Human Anatomy for Physician Assistant Students 6 s.h.
Regional dissection, lectures, demonstrations, tutorials, neuromatomy, radiology. Offered summer sessions. Prerequisites: enrollment in Physician Assistant Program or Graduate College, and consent of instructor.

060:112 General Histology for Dental Students 4 s.h.
Microscopic study of cells, fundamental tissues, organ systems; emphasis on tooth related structures. Offered spring semesters. Prerequisite: enrollment in D.D.S. program or graduate standing in anatomy and cell biology.

060:116 Medical Cell Biology 2 s.h.
Structure and function of cells and their organelles at the molecular level; cell biology concepts applied to understanding and treatment of human disease; basic science lectures, clinical correlations. Offered fall semesters. Prerequisite: medical student standing.

060:122 Independent Study in Anatomy and Cell Biology 1-12 s.h.
Projects arranged with department faculty members. Prerequisite: consent of instructor.

060:153 Hard Cases: Science Policy and Values 3 s.h.
Same as 033:153.

060:156 Scanning Electron Microscopy and X-Ray Microanalysis 3 s.h.
Light and electron microscopy for materials research; student projects progressing from preparation to data analysis. Prerequisites: a physical science course and consent of instructor. Same as 012:156, 052:156.

060:203 Gross Human Anatomy for Graduate Students 6 s.h.
Regional dissection, lectures, demonstrations, tutorials, discussions, seminars; clinically relevant areas of anatomical radiology, surface anatomy with clinical correlations. Prerequisites: graduate standing in anatomy and cell biology and consent of instructor.

060:204 Survival Skills for a Research Career 1 s.h.
Nontaxable skills necessary for pursuing a scientific research career, including scientific writing, presentation, manuscript review, curriculum vitae preparation, and so forth. Repeatable.

060:205 General Histology for Graduate Students 1-4 s.h.
Structure and function of cells, tissues, and organs studied at light and electron microscopic levels. Offered spring semesters. Prerequisites: graduate standing in anatomy and cell biology and consent of instructor. Corequisite: 050:240.

060:206 Graduate Research in Anatomy and Cell Biology 1-12 s.h.
Individual laboratory research training in anatomical sciences.

060:208 Functional Genomic Analysis of Disease 3 s.h.
State-of-the-art genomic approaches to studying physiological processes in the context of representative human diseases; technology, model systems, and bioethics explored as a framework for applying the "new biology" to elucidate disease mechanisms. Offered fall semesters of even years. Repeatable. Prerequisite: 156:201 or equivalent or consent of instructor.

060:216 Mechanisms of Cellular Organization 3 s.h.
Same as 072:220, 142:220.
Medical Student Training

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 care of the unconscious patient; and offers the fourth-year student intensive study in the specialty. Diverse clinical experiences, seminars and teaching conferences, and ongoing research activities help the postgraduate student or resident develop the knowledge and skills required of a specialist in anesthesia.

Nurse Anesthetist Program

The department coordinates a nurse anesthesia program, a collaboration between the Carver College of Medicine and the College of Nursing. The program, open to nurses who hold a bachelor's degree, prepares nurse anesthetists to serve rural hospitals in Iowa and nationwide. The curriculum provides intensive training in didactic and clinical anesthesia and includes diverse clinical experience as well as classroom instruction, seminars, and clinical case conferences.

Courses

116:000 Clinical Anesthesia

2 s.h.

Clinical instruction in preoperative and intraoperative care of the surgical patient; introduction to the clinical management of chronic pain; seminars, clinical case conferences, small group discussions.

116:010 Clinical Anesthesia Senior

4 s.h.

Instruction and practical experience in various forms of anesthesia for surgical procedures; basic techniques of general, spinal, epidural, peripheral nerve block anesthesia; endotracheal intubation, other airway maintenance skills; management of unconscious patients, cardiopulmonary resuscitation, pharmacology of general and regional anesthetics; their impact on respiration and cardiovascular function; anesthesia seminars, morbidity and mortality conference.

116:011 Intensive Care

3 s.h.

Evaluation, treatment of seriously ill patients in intensive care; ventilator management; ventilation of pulmonary function, monitoring of cardiovascular status, fluid balance and acid base problems, advance monitoring techniques.

116:271 Chemical and Physical Principles of Anesthesia Practice

3 s.h.

Chemistry and physics, as applied to anesthesia. Prerequisites: admission to anesthesia nursing program or consent of instructor. Same as 096:271.

116:272 Pharmacology of Anesthesia Practice I

4 s.h.

Mechanism and action of drugs; focus on pharmacotherapeutic principles, including pharmacokinetics, pharmacodynamics, receptor binding, cell signaling, principles of uptake, distribution, elimination of anesthetic and adjunctive agents. Prerequisites: grade of 2.67 or higher in 116:271 or consent of instructor, and admission to anesthesia nursing program. Same as 096:272.

116:273 Pharmacology of Anesthesia Practice II

1 s.h.

Continuation of 116:272; vascular, hepatic, renal, GI, endocrine aspects; cellular mechanisms, electrolytes alterations. Prerequisites: grade of 2.67 or higher in 116:272 or consent of instructor, and enrollment in anesthesia nursing program. Same as 096:273.

116:274 Basic Principles of Anesthesia Practice 3

3 s.h.

Overview of anesthesia as a nursing specialty; patient assessment, anesthetic planning and management, pertinent regulations; principles of general and regional anesthesia for surgical specialties. Prerequisite: grade of 2.67 or higher in 116:272 or consent of instructor. Corequisite: 116:273. Same as 096:274.

116:275 Advanced Principles of Anesthesia Practice 1

2 s.h.

Special needs and intraoperative management of obstetric, pediatric, and neurological patients; emphasis on pathophysiology, monitoring, ancillary requirements. Prerequisites: grade of 2.67 or higher in 116:273 and 116:274, or consent of instructor. Same as 096:275.

116:276 Advanced Principles of Anesthesia Practice II

2 s.h.

Special needs and intraoperative management of patients in cardiac, vascular, thoracic, and other surgical specialties; focus on altered pathophysiology, anesthetic considerations, strategies for special surgical situations. Prerequisites: grade of 2.67 or higher in 116:273 and 116:274, or consent of instructor. Same as 096:276.

116:277 Advanced Principles of Anesthesia Practice III

1 s.h.

Acute and chronic pain management; anesthetic problems with concurrent multisystem disease, advanced age, altered physical and/or mental status. Prerequisites: grade of 2.67 or higher in 116:273 and 116:274, or consent of instructor. Same as 096:277.

116:278 Professional Aspects of Anesthesia Nursing Practice

2 s.h.

Issues in contemporary anesthesia nursing practice: historical development, ethical, legal, and political aspects; evaluation, quality management; responsibilities; career expectations and development; role of professional organization. Prerequisite: enrollment in anesthesia nursing program. Same as 096:278.

116:279 Equipment and Technological Principles of Anesthesia Practice

1 s.h.

Anesthesia delivery systems, ancillary equipment, monitoring devices; correlation of applicable chemical and physical principles for safe operation, care, and diagnosis of anesthesia-related equipment. Prerequisites: 116:271 and enrollment in anesthesia nursing program. Same as 096:279.

116:287 Pharmacology of Anesthesia Practice III

1 s.h.

Drugs specific to various specialty areas: tocolytics, vasodilatory and cardiac agents, drugs that alter coagulation, chronic pain therapy agents. Prerequisites: grade of 2.67 or higher in 116:273 or consent of instructor, and enrollment in anesthesia nursing program. Same as 096:287.

116:290 Introductory Clinical Anesthesia

1 s.h.

Initial anesthesia preceptorship under faculty supervision; development of basic clinical skills for work as a nurse anesthetist. Prerequisites: basic science courses and enrollment in anesthesia nursing program. Same as 096:290.

116:291 Clinical Anesthesia I

1 s.h.

Supervised anesthesia clinical experience for general, orthopedic, gynecologic, pediatric, urologic, dental, ENT, ambulatory surgery, or invasive diagnostic procedures. Prerequisites: 116:290 and enrollment in anesthesia nursing program. Same as 096:291.

116:292 Clinical Anesthesia II

1 s.h.


116:293 Advanced Clinical Anesthesia

1 s.h.

Clinical anesthesia experiences in neurologic surgery, cardiovascular/thoracic surgery; experience providing anesthesia for patients with complex pathophysiology in varied surgical settings. Prerequisites: g.p.a. of at least 2.67, anesthesia nursing concentration courses, and senior standing in anesthesia nursing program. Same as 096:293.

116:294 Obstetrical Anesthesia

1 s.h.

Experience providing anesthesia for the parturient and initial neonatal care; two one-month rotations off campus. Prerequisites: anesthesia nursing courses and enrollment in anesthesia nursing program. Same as 096:294.

116:295 Rural Anesthesia

1 s.h.

Anesthesia experience in community hospitals; three one-month rotations at UI affiliated clinical sites in rural Iowa. Prerequisites: anesthesia nursing courses and enrollment in anesthesia nursing program. Same as 096:295.

116:333 Intensive Care off Campus

1 s.h.

Evaluation and treatment of critically ill patients in a non-UIH intensive care unit; artificial ventilation, evaluation of pulmonary function, monitoring of cardiovascular status, fluid balance and acid base problems, advance monitoring techniques. Prerequisites: 116:011 and consent of program director.

116:998 Anesthesia on Campus

1 s.h.

Well defined research project relating to anesthesia; arranged by student with department approval.

116:999 Anesthesia off Campus

1 s.h.

Knowledge development in anesthesiology work and monitor use, ability to identify respiratory, cardiovascular, and neurologic effects of anesthetic agents; skill in airway management; basic skills in general, spinal, epidural, and peripheral nerve block anesthesia.
The Division of Associated Medical Sciences includes five academic programs: Clinical Laboratory Sciences, Nuclear Medicine Technology, Physical Therapy and Rehabilitation Science, Physician Assistant, and Radiation Sciences. The division provides coordination of academic programs for students in the five units. Students usually enroll initially in the College of Liberal Arts and Sciences and are assigned a faculty adviser from the division.

In addition to the certificate of completion, the Clinical Laboratory Sciences, Nuclear Medicine Technology, and Radiation Sciences Programs offer the B.S. degree to qualified students. Two of the division’s programs offer graduate degrees, which are awarded by the Graduate College. The M.P.A.S. degree is awarded upon completion of the Physician Assistant Program, and the Physical Therapy and Rehabilitation Science Program offers three degree options to qualified students: D.P.T., M.A., and Ph.D.

Although each program in the division has its own admission requirements, all require a similar foundation in the biological, chemical, and mathematical sciences. Physics, physiology, computer science, biochemistry, general statistics, and psychology are required by some programs and are highly recommended for others. Students should plan their study programs carefully so that conflicts in specifically required courses do not occur. It is imperative that students consult with the appropriate program adviser to assure the proper sequencing of courses.

The general academic policies described here govern all five of the division’s programs. For descriptions of each of the division’s five programs, summaries of each profession, curriculum outlines, prerequisite and admission requirements, and lists and descriptions of courses, see “Clinical Laboratory Sciences,” “Nuclear Medicine Technology,” “Physical Therapy and Rehabilitation Science,” “Physician Assistant Program,” and “Radiation Sciences” in the Catalog.

**General Academic Policies**

**Advising**

When students declare their intended major to be one of the programs in the Division of Associated Medical Sciences, they are assigned to that program for academic advising.

**Admission**

Students are admitted to the Carver College of Medicine at the time of formal admission to one of its programs. Admission policies and procedures vary from program to program.

Students should consult the individual program descriptions and/or program offices for details of the admission processes. Students may be admitted as degree or nondegree candidates (special students). Nondegree candidates are subject to Carver College of Medicine rules for academic probation and dismissal.

To be considered for admission, applicants must have earned a cumulative grade-point average on all college work attempted as appropriate to each program: clinical laboratory sciences, at least 2.50; nuclear medicine technology, at least 2.50; physical therapy, at least 3.00; and physician assistant, at least 3.00. Admission committees give special attention to grades in the sciences, particularly prerequisite science courses required by the individual programs.

**Student Health**

All health professions students are required to provide proof of health insurance coverage when they register at The University of Iowa. For more information about this requirement, students should consult the student insurance office. In addition, students admitted to Division of Associated Medical Sciences programs must show proof that they have had a recent physical examination, including routine laboratory procedures and immunizations. For more information, consult the Student Health Service.

**Graduation Requirements for Baccalaureate Degrees**

**General Requirements**

Students must earn a minimum of 120 s.h. of credit. The number required after admission to a specific program varies from program to program. Students should consult the program description and/or program director for more specific information.

The general requirements for graduation include quality as well as quantity of work completed. Candidates must earn a g.p.a. of at least 2.00 in all college work attempted, all work undertaken at The University of Iowa, and all graded work attempted after admission to the Carver College of Medicine. Students enrolled in a program that uses the pass/fail/honors grading system must pass all courses required to complete the program.

The residence requirement may be met by earning the final consecutive 30 s.h. in residence, or 45 of the last 60 s.h. in residence, or an overall total of 90 s.h. in residence.

Nonresident instruction includes course work at other colleges, universities, and other institutions; course work in other undergraduate colleges at The University of Iowa; and work by correspondence at other institutions.

General Education Program requirements vary from program to program. Students must check the requirements of the specific program or degree objective. Specific requirements for the major are listed in each program description.

**Double Majors**

Students may earn more than one major in the Carver College of Medicine by meeting the requirements for each major.

**Two Baccalaureate Degrees**

Students who want to earn two baccalaureate degrees, each from a different college, may do so under a combined degree program. They must have their combined course of study approved by the dean of the Carver College of Medicine and the dean of the other college to be eligible for a combined degree program.

**Second Baccalaureate Degree**

Students who already possess a baccalaureate degree and who want to earn an additional bachelor’s degree must complete at least 30 s.h., consecutively, in the Carver College of Medicine. Students who hold a B.A. or B.S. degree are considered to have completed the General Education Program except for the foreign language component. Holders of other degrees must meet college and program degree requirements. Students with B.A. or B.S. degrees must satisfy the residence requirement for a bachelor’s degree at Iowa. Candidates for a second bachelor’s degree must apply for the degree through the University’s Office of Admissions.

**Combined Baccalaureate Degree Program**

Students may earn two University of Iowa baccalaureate degrees in a combined curriculum program in the Carver College of Medicine and the College of Liberal Arts and Sciences. Although students begin their academic program in the College of Liberal Arts and Sciences, they must be eligible for admission to Carver College of Medicine baccalaureate programs in clinical laboratory sciences, nuclear medicine technology, or radiation sciences.

Students who select this program must meet baccalaureate degree requirements specified by both colleges. Candidates in the combined program usually are able to meet the baccalaureate degree requirements of both colleges in about five academic years. The exact length of time necessary to complete the program is determined by the major areas of study selected in each college. Students who enter the combined degree program are assigned two faculty advisers, one in the major department of the Carver College of Medicine and the other in the major department of the College of Liberal Arts and Sciences.

Candidates in the combined degree program must satisfy all requirements for both degrees. They must complete an overall total of 154 s.h. of credit, including at least 30 s.h. of courses offered by the Carver College of Medicine and at least 30 s.h. of courses offered by the College of Liberal Arts and Sciences.

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

Students graduating from the Carver College of Medicine may earn a minor or minors in any degree-granting department or program in the college outside of their major department or in another college of the University by meeting that department’s requirements for the minor. In general, a minimum of 15 s.h. must be taken in the minor.

Application for Degree

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

Duplication

Duplication occurs when students take the same course more than once or when they take a course that duplicates the content of a satisfactorily completed course. Regression occurs when students take a more elementary course after having satisfactorily completed a more advanced or higher-level course in the same subject. Duplication and regression are assessed by the registrar at the time of graduation analysis. Hours earned by duplication or regression do not count toward the number of hours needed for graduation.

Graduation Honors

Approximately 10 percent of the division’s graduating students may be recognized for their scholastic achievement upon recommendation by the program and with the dean’s approval. Minimum criteria have been established for the following designations: distinction, high distinction, and highest distinction.

Registration and Grading

Information about tuition and fees, registration, and deadlines is available from the Office of the Registrar. Students who add or drop a course after registration or who register late are assessed a fee. Courses dropped after the deadline results in a W (withdrawal) on the transcript. Students are not allowed to register for full-semester courses after the second week of the semester or the first week of the summer session. Students must register for off-cycle courses before the first day of the course. The maximum permitted registration is 20 s.h. in a regular semester and 10 s.h. in the summer session. Students must obtain permission from the head of the division to register for more than the maximum semester hours allowed.

Changes in Registration

Courses may be added with the signatures of the adviser and the course instructor at any time during the first one-fifth of the course. They may be dropped at any time during the first two-thirds of the course. Approval is required from the head of the division for all other changes in registration and is granted only in extraordinary circumstances. Students are assigned a mark of W (withdrawn) for any course dropped after the first one-fifth of the course.

Students who have registered for courses offered for variable or arranged credit may change the number of semester hours with the signatures of the instructor, the adviser, and the head of the division at any time before the end of the first two-thirds of the course.

Other changes in registration (such as to audit for zero credit) may be made only during the first one-fifth of the course.

It is the student’s responsibility to see that the change of registration form is approved by the necessary individuals and delivered to the Registration Center. Changes in registration become effective on the date the completed form is submitted to the Registration Center.

Withdrawal of Registration

Students may withdraw registration without academic penalty at any time before the end of the first four-fifths of the course, but no credit is given for the course. Later withdrawal results in automatic assignment of an F. Students who withdraw are not reinstated after the deadline for that session.

Grading Procedures

Marking procedures vary from program to program. Students should consult individual program policy statements for information.

Auditing Courses

Students may register as auditors with approval from the appropriate program director and course instructor. In addition to obtaining these signatures, students must register for zero credit in the course to be audited. The mark of R (registered) is assigned if the student’s attendance and performance are satisfactory; if they are unsatisfactory, the mark of W (withdrawn) is assigned. Courses completed with a mark of R do not meet any college requirement and carry no credit toward graduation. Auditing may not be used as a second-grade-only option.

Second-Grade-Only Option

Repeating courses for the second-grade-only option is allowed in extraordinary circumstances. To repeat a course for the second-grade-only option, students must obtain the signatures of the course instructor, the program director, and the dean on a special form obtained from the program office. The properly signed form must be presented to the registrar’s office before the end of the first one-fifth of the course. Both grades remain on the permanent record, but only the second one is used to calculate grade-point average and hours earned.

Incomplete

A grade of I (incomplete) may be reported if the reasons for inability to finish the course satisfactorily are acceptable to the program director and the course instructor. There also must be evidence that the course work will be finished within a reasonable length of time, usually by the end of the next academic session. Incompletes not removed by the deadline for submission of final grades for the next session result in the assignment of a grade of F. Changing the grade when an incomplete has been converted to an F requires the signature of the dean on a change of grade form.

Credit by Examination

The procedure for the acceptance of and the granting of credit by examination varies from program to program. The program director should be consulted for further information.

Reports to Students

Instructors contact any student whose work falls below the minimum acceptable level when the problem is recognized. Grades are reported on the student’s transcript, following University protocol. No formal midterm reports are given.

Academic Progress, Probation, Dismissal

Students are expected to maintain satisfactory academic and professional standards and to demonstrate reasonable progress toward the degree and certificate. Students who fail to maintain satisfactory academic progress or professional standards of behavior as determined by the program may be placed on probation or dismissed from the program. Probation serves as a warning that the student will not graduate unless his or her academic performance and/or professional behavior improves.

Students on probation are restored to good standing by the program director upon evidence that the problem has been corrected. Such action is usually taken at the end of a semester or session. Entering students may be admitted on probation if they fail to meet the minimum stated standards for admission.

Continued unsatisfactory scholarship or unprofessional behavior may result in dismissal from a program. Students dismissed from a program must reapply for admission through the regular, established program admissions process, following review by the executive committee of the division, at least four months prior to the requested date of readmission.

Students placed on probation or dismissed from a program are notified in writing of these actions by the program director; copies are placed in their files.

Students are expected to attend classes regularly. Students who miss classes or examinations because of illness are expected to present evidence that they have been ill. Any other absences must be approved in advance by the course instructor.

Any offense against good order committed by a student in a classroom, clinical setting, or laboratory may be summarily dealt with by the instructor or referred to the program director. The instructor reports in writing any disciplinary action taken against a student to the program director. Repeated or exceptional instances are reported to the dean.
Biochemistry • Carver College of Medicine 415

Academic Misconduct

Plagiarism and Cheating

All cases of plagiarism and cheating in the Carver College of Medicine are reported to the dean with a statement of relevant facts. The program director and the instructor concerned may submit recommendations for appropriate disciplinary action.

The individual instructor may reduce the student's grade, including assignment of the grade of F in the course. A report of this action is sent to the student, the program director, and the dean.

The dean, or a faculty committee appointed by the dean, may impose the following or other penalties as the offense may warrant: disciplinary probation; assessment of additional hour for the degree, suspension from the program for a period of time, or recommendation of expulsion from the program.

Appeals Procedure

Students who want to appeal a decision should submit an appeal in writing to the dean within two weeks after the date of receipt of the decision in writing.

Financial Aid

Students in the Division of Associated Medical Sciences undergraduate programs are eligible to apply for undergraduate financial aid. Scholarships, grants, loans, and part-time job placement are administered by the University's Office of Student Financial Aid and are awarded on the basis of demonstrated need. Part-time work in related areas is sometimes available.

BIOCHEMISTRY

Head: John E. Donelson

Associate professors: Robert E. Cohen, Kenneth P. Murphy, Ramaswamy Subramaniam, Lori Walrath, Lois Weisman

Assistant professors: Adrian Elcock, M. Todd Washington

Undergraduate degrees: B.A., B.S. in Biochemistry

Graduate degrees: M.S., Ph.D. in Biochemistry

Web site: http://www.biochem.uiowa.edu/

Biochemistry is the study of the basic chemical processes that occur in all living systems. One of the most active sciences, it provides a foundation for other biosciences.

Biochemists generally work in laboratories and/or classrooms. Those with a bachelor's degree are often employed as research assistants in industry, government, education, and health service, or in secondary school teaching, for which licensure is required.

Biochemists with advanced degrees—usually a doctorate—pursue teaching, research, and/or administrative careers in universities, medical schools, hospitals, private research agencies, government laboratories, biotechnology companies, and in food, drug, cosmetics, chemical, petroleum, and allied industries.

Undergraduate Programs

The College of Liberal Arts and Sciences administers undergraduate programs and grants undergraduate degrees in biochemistry. The Department of Biochemistry offers programs of study leading to both Bachelor of Science and Bachelor of Arts degrees. The requirements are outlined below.

Students choose advanced science electives to supplement biochemical studies or as part of a minor or a double major. Science elective courses numbered below 100 need an adviser's approval to be counted toward the degree.

Transfer credit for biochemistry courses requires the approval of an undergraduate adviser in biochemistry.

Bachelor of Science

The B.S. degree program in biochemistry prepares students to work in positions that require a mastery of general biochemistry. It is also excellent preparation for graduate study in biochemistry and related sciences or for study toward a professional degree in the health sciences.

The B.S. degree in biochemistry requires 73 s.h. In addition to completion of the College of Liberal Arts and Sciences General Education Program. Courses required for the B.S. degree are as follows.

All of these:

002:010-002:011 Principles of Biology I-II 8 s.h.
004:011-004:012 Principles of Chemistry I-II 8 s.h.
22M:025-22M:026 Calculus I-II 8 s.h.
029:081-029:082 Introductory Physics I-II 8 s.h.
099:001 Orientation and Introduction to the Field of Biochemistry 0 s.h.
099:101 Technical Communication in Biochemistry 1 s.h.
099:120 Biochemistry and Molecular Biology I 3 s.h.
099:130 Biochemistry and Molecular Biology II 3 s.h.
099:140 Experimental Biochemistry 4 s.h.

Advanced science electives, chosen in consultation with adviser 9 s.h.

One of these sequences:

004:121-004:122 Organic Chemistry I-II 6 s.h.
004:123-004:124 Organic Chemistry for Majors I-II (preferred) 6 s.h.
009:241 Biophysical Chemistry I 3 s.h.
009:242 Biophysical Chemistry II 3 s.h.

One of these:

004:141 Organic Chemistry Laboratory 3 s.h.
004:142 Organic Chemistry Laboratory for Majors (preferred) 3 s.h.

*Students may register for 099:155 only if they have earned an average grade of B or better in 099:120, 099:130, and 099:140 and a grade of B- or better in each of 099:120, 099:130, and 099:140; or have consent of adviser and instructor. Students may register for 099:115 any time.

Students are encouraged to begin research by taking 099:115 Undergraduate Independent Study (may be taken for a total of 6 s.h.). There are no prerequisites. Students independently may arrange to take this course or they may request assistance from an undergraduate adviser.

Bachelor of Arts

The B.A. degree in biochemistry requires 58 s.h. in addition to completion of the College of Liberal Arts and Sciences General Education Program. The required courses are as follows.

All of these:

002:010-002:011 Principles of Biology I-II 8 s.h.
004:011-004:012 Principles of Chemistry I-II 8 s.h.
22M:025-22M:026 Calculus I-II 8 s.h.
029:081-029:082 Introductory Physics I-II 8 s.h.
099:001 Orientation and Introduction to the Field of Biochemistry 0 s.h.
099:101 Technical Communication in Biochemistry 1 s.h.
099:120 Biochemistry and Molecular Biology I 3 s.h.
099:130 Biochemistry and Molecular Biology II 3 s.h.
099:140 Experimental Biochemistry 4 s.h.

Advanced science electives, chosen in consultation with adviser 6 s.h.

One of these sequences:

004:121-004:122 Organic Chemistry I-II 6 s.h.
004:123-004:124 Organic Chemistry for Majors I-II (preferred) 6 s.h.
009:241 Biophysical Chemistry I 3 s.h.
009:242 Biophysical Chemistry II 3 s.h.

In addition, B.A. students intending to go on to advanced degrees in the biological or health sciences are advised to include 4 s.h. or more of 099:115 Undergraduate Independent Study or 099:155 Research, Independent Study (senior research) in their programs.

Teacher Licensure

Biochemistry majors, especially those in the B.A. program, may qualify for teacher licensure by taking additional courses in teacher education. Students should consult with an adviser in the College of Education.
Four-Year Graduation Plan

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

Bachelor of Science

Before the third semester begins: 004:011 and 004:012, 22M:025, 099:001, and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: the courses listed above, plus 002:010 and 002:011; 004:121, 004:122, and 004:141; 22M:026; and at least one-half of the semester hours required for graduation

Before the seventh semester begins: the courses listed above, plus 029:081 and 029:082, 099:120, 099:130, and 099:140, two science electives, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: the courses listed above, plus 004:131 or 004:132 or 099:241 or 099:242, a science elective, and at least 3 s.h. of 099:155

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

Bachelor of Arts

Before the third semester begins: 004:011 and 004:012; math through 22M:026 or higher; 099:001; and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: the courses listed above, plus 002:010 and 002:011; 004:121 and 004:122, and at least one-half of the semester hours required for graduation

Before the seventh semester begins: the courses listed above, plus 029:011 and 029:012, 099:120, 099:130, and 099:140, two science electives, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: the courses listed above, plus 004:131 or 099:241 or 099:242, and a science elective

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

Honors

Qualified students may earn an honors degree in biochemistry. They must be members of the University Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information). Honors students in biochemistry must complete 099:155 Research, Independent Study. They must present their research results in a report written in the form of a journal article and in an oral report presented at a special open departmental seminar.

Combined Programs

Students, especially those in the B.A. program, may include courses from other disciplines, such as business, prelaw, psychology, or journalism. This prepares them for one of the many vocations on which biochemistry has an impact.

Graduate Program

The Carver College of Medicine and the Graduate College coordinate the graduate program in biochemistry and other biosciences; graduate degrees are granted through the Graduate College. See the Carver College of Medicine introductory section and the Graduate College section of the Catalog for general information about study in medicine and graduate study at the University.

The Department of Biochemistry offers a program of study leading to the M.S. and Ph.D. degrees. Students admitted to graduate program in biochemistry usually pursue the Ph.D. degree. The department also offers the opportunity for qualified students to pursue a combined program leading to the M.D./Ph.D. (medical scientist) training.

The focus of the graduate program is on the individual student. Students choose from three curricula to satisfy requirements for the degree: standard, biophysical emphasis, or molecular emphasis.

In the first year, students engage in formal course work and tutorial laboratory experiences that serve as the basis for selecting a topic for thesis research. They spend half their time in courses and the other half working in four different faculty laboratories (099:261 Research Techniques), learning research techniques in the context of ongoing research.

Graduate students in all three curricula take the following courses.

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>099:282</td>
<td>Seminar</td>
<td>0-1</td>
</tr>
<tr>
<td>156:201</td>
<td>Principles in Molecular and Cell Biology</td>
<td>4</td>
</tr>
<tr>
<td>099:241</td>
<td>Biophysical Chemistry I-II</td>
<td>6</td>
</tr>
<tr>
<td>142:215</td>
<td>Molecular Biology of Gene Expression</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td>9</td>
</tr>
</tbody>
</table>

Graduate students in the standard curriculum also must take the following.

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>099:241</td>
<td>Biophysical Chemistry I-II</td>
<td>6</td>
</tr>
<tr>
<td>142:215</td>
<td>Molecular Biology of Gene Expression</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td>9</td>
</tr>
</tbody>
</table>

Graduate students in the biophysical emphasis also must take the following.

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>099:241</td>
<td>Biophysical Chemistry I-II</td>
<td>6</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td>9</td>
</tr>
</tbody>
</table>

Graduate students in the molecular emphasis also must take the following.

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>099:241</td>
<td>Biophysical Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>099:242</td>
<td>Biophysical Chemistry II</td>
<td>3</td>
</tr>
</tbody>
</table>

Students choose research laboratories for Ph.D. thesis research after promotion to a second year of study and begin their thesis projects. They take courses that supplement and complement their interests and preparation, including the following required courses.

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>050:270</td>
<td>Responsible Conduct in Research</td>
<td>0</td>
</tr>
<tr>
<td>099:237</td>
<td>Topics in Biochemistry</td>
<td>2</td>
</tr>
<tr>
<td>099:282</td>
<td>Seminar</td>
<td>0-1</td>
</tr>
</tbody>
</table>

Research Biochemistry (099:292) and elective science courses numbered 100 or above in other departments satisfy the remaining course requirements.

Students take the comprehensive examination before the end of June in their second year, after which they are admitted formally to degree candidacy and begin to concentrate on thesis research. The program culminates in students’ successful defense of their completed thesis work before an examining committee.

In addition to meeting these requirements and those of the Graduate College, students are expected, as part of their training, to assist in teaching biochemistry for two or three semesters.

Throughout the program, students are associated with small research seminar groups and receive close personal attention from the biochemistry faculty members who serve as research advisers.

Admission

The graduate program in biochemistry is flexible enough to accommodate students with bachelor’s degrees in any of the biological, biochemical, or physical sciences. Appropriate preparation includes one-year, college-level courses in organic and physical chemistry, biology, physics, and mathematics through calculus. Students are expected to have had one or more introductory courses in biochemistry.

Minimum requirements for admission to the department include an undergraduate g.p.a. of at least 3.00 and acceptable scores on the verbal, quantitative, and analytical sections of the Graduate Record Examination (GRE) General Test. Candidates are more competitive if they also submit scores for the advanced examinations in chemistry, biology, or biochemistry and molecular and cell biology.

Financial Support

Students admitted to the Ph.D. program in biochemistry routinely receive a stipend and tuition support.

Research

The department’s current research interests include the study of protein structure and function, protein folding, DNA bending, complex carbohydrate structure and function, regulation of gene expression, mechanisms of transcription and replication, enzyme reaction mechanisms, intracellular signaling, differentiation, and membrane determinants of cell shape and...
motility. The department's web site provides more detailed information about faculty research interests.

Facilities

Many of the Department of Biochemistry's research and teaching facilities are located on a single floor in the Bowen Science Building, where the Departments of Anatomy and Cell Biology, Microbiology, Pharmacology, and Physiology and Biophysics are also located. Several of the department's research groups are located in the adjacent Medical Education and Biomedical Research Facility.

The University of Iowa maintains a number of central research support facilities and equipment that promote campuswide interactions between research groups. These include the facilities for electron microscopy, fermentation, image analysis, high field NMR, high resolution mass spectrometry and academic computing (through Information Technology Services). The Carver College of Medicine operates other facilities available to biochemistry researchers for nuclear magnetic resonance, flow cytometry, DNA synthesis, tissue culture hybridoma, gene transfer, X-ray analysis, and transgenic and gene targeting.

Individual faculty research laboratories are well-equipped for modern research, and there are many common-use laboratories, including instrument rooms, a reading room, cold rooms, tissue culture areas, preparation rooms, and a stockroom. Research is supported by staff in instrument shops, animal quarters, photography and illustration service, and by office staff, stockroom supervisors, and a purchasing agent.

Together, the department and the central support facilities provide virtually all of the equipment required for modern biochemical research. Examples of such equipment include analytical and preparative ultracentrifuges; fluorescence, optical rotary dispersion, high-field NMR, ultraviolet-visible, and rapid kinetic instruments; amino acid analyzers and protein sequencers, gas chromatographs, preparative high performance liquid chromatographs, liquid scintillation counters, electrophoresis equipment, instrumentation for protein X-ray crystallography and microcalorimetry, and automated DNA sequencers.

The department maintains a reading room stocked with primary books and journals used by biochemists. The Hardin Library for the Health Sciences is a large, complete library located on the health sciences campus. Excellent resources are also provided by other departmental branches of the University Libraries system and by computer access to Bibliographic Retrieval Services.

Courses

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>099:110</td>
<td>Biochemistry</td>
<td>3 s.h.</td>
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<tr>
<td>099:115</td>
<td>Undergraduate Independent Study</td>
<td>arr.</td>
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<tr>
<td>099:120</td>
<td>Biochemistry and Molecular Biology I</td>
<td>3 s.h.</td>
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<tr>
<td>099:130</td>
<td>Biochemistry and Molecular Biology II</td>
<td>3 s.h.</td>
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<tr>
<td>099:140</td>
<td>Experimental Biochemistry</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>099:155</td>
<td>Research, Independent Study</td>
<td>2-6 s.h.</td>
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<tr>
<td>099:161</td>
<td>Biochemistry for Dental Students</td>
<td>4 s.h.</td>
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<tr>
<td>099:162</td>
<td>Biochemistry for Pharmacy Students</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>099:163</td>
<td>Medical Biochemistry</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>099:164</td>
<td>Biochemistry for Physician Assistant Students</td>
<td>3 s.h.</td>
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<tr>
<td>099:165</td>
<td>Concepts in Hematology</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>099:211</td>
<td>Biophysical Chemistry I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>099:224</td>
<td>Biophysical Chemistry II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>099:261</td>
<td>Research Techniques</td>
<td>1-5 s.h.</td>
</tr>
<tr>
<td>099:275</td>
<td>Perspectives in Biocatalysis</td>
<td>1 s.h.</td>
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</tbody>
</table>

The Clinical Laboratory Sciences Program is one of five academic units in the Division of Associated Medical Sciences. It is sponsored cooperatively by the Carver College of Medicine, the College of Liberal Arts and Sciences, University of Iowa Hospitals and Clinics, and the Veterans Affairs Medical Center. For detailed information on the division's general academic policies, see “Division of Associated Medical Sciences” in this section of the Catalog.

Clinical laboratory scientists/medical technologists perform the laboratory tests on which physicians rely for accurate diagnosis and proper treatment of disease. They are in demand in hospital, private, and government laboratories; clinics; physicians’ offices; and industrial, pharmaceutical, biological, and environmental research laboratories. Clinical laboratory scientists/medical technologists are highly skilled health team members who use a battery of sophisticated procedures and instruments in their work and who possess specialized knowledge and skills acquired through completion of a formal program of academic and clinical study.

Satisfactory completion of the Clinical Laboratory Sciences Program qualifies students to take all national clinical laboratory scientist/medical technologist certification examinations. The program is accredited by the National Accrediting Agency for Clinical Laboratory Sciences. Assuming that students have completed the required courses in the first, sophomore, and junior years, the remaining curriculum may be as follows.

Senior Year

The professional (clinical) program consists of a minimum of 12 months of didactic and practical instruction. The first summer session and the fall semester are devoted to lectures, laboratory experience, demonstrations, short generalist rotations, and seminars covering theory and technique in clinical laboratory science. During the last semester, students have the opportunity to rotate through clinical laboratory facilities of University of Iowa Hospitals and Clinics, Veterans Affairs Medical Center, and other Iowa hospitals.

The program is made up of the following courses.

099:110 Clinical Laboratory Science Concepts in Immunohematology 1 s.h.
099:111 Clinical Laboratory Science Concepts in Hematology 2 s.h.
069:112 Clinical Laboratory Science
Concepts in Instrumentation, Urinalysis, and Immunology 4 s.h.

069:113 Clinical Laboratory Science
Concepts in Microbiology I 2 s.h.

069:121 Introduction to Clinical Practice 1 s.h.

069:122 Chemistry for Clinical Laboratory Science 4 s.h.

069:123 Immunohematology for Clinical Laboratory Science 3 s.h.

069:124 Hematology for Clinical Laboratory Science 4 s.h.

069:125 Microbiology for Clinical Laboratory Science 4 s.h.

069:126 Clinical Chemistry 4 s.h.

069:127 Clinical Hematology and Immunohematology 4 s.h.

069:128 Clinical Microbiology, Parasitology 4 s.h.

069:129 Clinical Immunology, Molecular Pathology, and Body Fluids 3 s.h.

069:131 Clinical Laboratory Science Professional Skills Seminar 2 s.h.

069:132 Clinical Laboratory Science Management Topics and Projects 1 s.h.

**Admission**

Enrollment in the clinical laboratory sciences/medical technology professional program is limited to 16 students. Entrants begin the program in late May and finish it the following May.

To apply for admission to the professional program, students must have completed all of the following prerequisites by the start of the professional (clinical) year. All other University of Iowa graduation requirements must be met by the completion of the professional (clinical) year. Students must have earned at least 86 s.h. of college credit before beginning the program.

Chemistry, including organic chemistry and biochemistry 14 s.h.
Mathematics 3 s.h.
Statistics 3 s.h.
Biology, including microbiology and human physiology 14 s.h.

Deadline for early admission decisions is October 15. Applications are accepted until the class is filled. Admission is competitive. A cumulative g.p.a. of at least 2.50 both overall and in science is required. Applicants who enter the program as undergraduates must meet the general admission requirements of the College of Liberal Arts and Sciences. Students at sophomore or higher levels who have taken some college biology and chemistry and have an overall g.p.a. of at least 3.00 are eligible for early acceptance decisions and may apply at any time during the year.

Students should consult with a Clinical Laboratory Sciences Program adviser as early as possible to plan preclinical studies that meet all requirements.

**Expenses**

Clinical laboratory science students in the professional year curriculum are provided laboratory coats and equipment. Students are responsible for textbooks, University tuition, and student fees.

Students enrolled at The University of Iowa with the intent to receive a baccalaureate in clinical laboratory science at the end of the professional year are assessed full-time student tuition and fees established by the University.

Students who are seeking only a certificate in clinical laboratory science pay reduced tuition and fees. Contact the program for information on tuition and fees. To be eligible for the certificate-only option, a student must have previously earned a baccalaureate degree from an accredited institution of higher education or be enrolled at an affiliated institution that will grant the baccalaureate degree at the completion of the clinical laboratory science program.

**Medical Student Training**

The University of Iowa program is one of the few in the country with a required rotation for medical students. Each third-year medical student spends two weeks in the clinic and attends about 10 one-hour lectures. A good cross section of patients is available due to the mixture of primary and tertiary care patients, including a large number referred from Student Health Service. Additional patients are seen at the nearby Veterans Affairs Medical Center.

Various electives are available for fourth-year medical students, including further clinical experience, dermatologic research, and special studies.

**Courses**

062:001 Clinical Dermatology 2 s.h.
Basic dermatology; lectures, independent study, clinical experience. Prerequisite: third-year medical standing.

062:002 Dermatology Elective 2 s.h.
Advanced clinical experience, dermatologic surgery, special assignments. Prerequisite: fourth-year medical standing.

062:004 Research in Dermatology 2 s.h.
General principles of medical research; clinical or laboratory projects; individual study.

062:099 Dermatology off Campus 2 s.h.
Arranged by student with departmental approval.

**Dietetic Internship**

Director: Laurie Kroymann
Web site: http://www.uihc.uiowa.edu/ftis/

University of Iowa Hospitals and Clinics offers a Dietetic Internship Program that is fully accredited by the American Dietetic Association's Commission on Accreditation for Dietetics Education. It qualifies graduates to take the exam for qualification as a Registered Dietitian (RD). Clinical dietitians and food service operation managers of the Department of Food and Nutrition Services at University of Iowa Hospitals and Clinics provide the teaching for the program. Graduate courses in the program are administered by the Carver College of Medicine and the College of Public Health. See “Associated Courses” in this section of the Catalog.

Students generally complete the program with 9 s.h. of graduate credit, which may be applied toward an advanced degree. Approximately half of the program’s graduates go on to complete advanced degree programs, most typically a master's degree in health promotion, public health, or business.

University of Iowa Hospitals and Clinics awards a certificate to program graduates. To be admitted to the program, applicants must meet the requirements of the University of Iowa Graduate College and must complete a didactic program in dietetics that has approval of the ADA Commission on Accreditation for Dietetics Education.

Students enter the program in the fall semester. The postmark deadline for applications is February 15.

**Associated Courses**

For course descriptions, see “Nondepartmental Courses” in the Carver College of Medicine introductory section of the Catalog and “Epidemiology” in the College of Public Health section.

050:203 Clinical Dietetics 1 s.h.
173:230 Principles of Dietary Assessment 1 s.h.
173:235 Nutritional Epidemiology 2 s.h.
173:236 Nutrition Intervention in Clinical Trials Research 2 s.h.
173:237 Nutrition Intervention in Research Lab 3 s.h.
Emergency Medicine

Director: Eric Dickson
Associate professors (clinical): Eric Dickson, Mark Graber, Stephen Scheckel
Assistant professors (clinical): Agustin Aguilar, Dana Collagiano, Hans House, Harie Hove, Charles Jennissen, Catherine Jones, Eric Nilles, Andrew Nugent, Bobby Peters, Christopher Russ, Roy Werner, David White
Web site: http://www.uihealthcare.com/emergencymedicine

The Program in Emergency Medicine prepares new physicians to recognize and treat a variety of urgent and emergent conditions. The program is dedicated to fostering basic sciences and clinical research relevant to the field of emergency medicine. The Program in Emergency Medicine is also dedicated to the education and training of Emergency Medical Services (EMS) personnel through the EMS Learning Resources Center (EMSLRC).

Medical Student Training

Senior elective rotations are available at University of Iowa Hospitals and Clinics and at several other sites throughout Iowa, including St. Luke's Hospital, Cedar Rapids; Great River Medical Center, Burlington; Covenant Medical Center, Waterloo; Broadlawns Hospital, Des Moines; and Marian Health Center, Sioux City. Students also may arrange an off-service elective independently with established residency programs throughout the United States.

The program offers a special introductory month to emergency medicine as well as Wilderness Medicine, a rotation that includes a trip to the Death Valley and Mount Whitney areas of California.

Residency Program

The Emergency Medicine faculty directs the Iowa Emergency Medicine Residency, Iowa's first and only emergency medicine residency. The residency is a three-year program, with a portion of the clinical months spent at St. Luke's Hospital, Cedar Rapids. The program emphasizes critical care training and rotations in a wide variety of specialties, preparing residents for careers in diverse areas of emergency medicine, from rural practice to academics.

Resources

The Emergency Treatment Center, located on the first floor of Roy Carver Pavilion, is a Level I Adult and Pediatric Trauma Center, and serves as a referral center for communities across the state of Iowa.

Courses

184.222 Emergency Medicine: St. Luke's, Cedar Rapids
Preceptorship with full-time emergency department physicians. Prerequisite: completion of third year in medicine.

184.221 Emergency Medicine UIHC
Preceptorship with residents and faculty, emphasis on principles of acute medicine. Prerequisite: completion of third year of medicine.

Family Medicine • Carver College of Medicine

184.222 Emergency Medicine Off Campus
Preceptorship with residents and faculty, emphasis on principles of acute medicine. Prerequisites: completion of third year in medicine and consent of instructor.

184.223 Rural Emergency Medicine at Burlington, Iowa
4 s.h.
In-depth clinical experience in a busy rural hospital emergency department under supervision of residency-trained emergency physicians; lectures, skill labs, projects. Prerequisite: completion of third year in medicine.

184.224 Introduction to Advanced Life Support Skills
4 s.h.
Experience managing acute threats to life, including trauma, respiratory failure, poisoning, sepsis, stupor/coma, and acute MI, using ACLS and PALS courses and work with EMS staff. Prerequisite: completion of third year in medicine.

184.225 Wilderness Medicine
4 s.h.
Didactic and scenario training in physiology, diagnosis, and emergency treatment of heat- and cold-related illnesses, high altitude disorders, wilderness trauma, envenomations, and immersion injuries; travel to Death Valley and Mount Whitney, California.

184.402 Emergency Medicine Des Moines
4 s.h.
Participation in in- and out-of-hospital management of acute illnesses, follow-up care when possible; Broadlawns Hospital, Des Moines. Prerequisite: consent of department.

184.425 Emergency Medicine Waterloo
4 s.h.
Participation in acute emergency care, management of acute illnesses, follow-up care when possible; Covenant Medical Center, Waterloo.

184.430 Emergency Medicine Sioux City
4 s.h.
Routine emergency problems in regional trauma center; functions of area resource hospitals (St. Luke's Medical Center, Mercy Medical Center); option to accompany ambulance crews. Prerequisite: basic life support certification.

Family Medicine

Interim head: Gerald Jogerst
Professor: Arthur Hartz
Professors emeriti: Reuben B. Widmer, Glynis O. Williams
Clinical professor: John E. Sutherland
Associate professors: George R. Bergus, John W. Ely, Paul James, Gerald J. Jorgensen, Barber T. Levy, Victoria Sharp
Associate professors (clinical): Richard Dobyns, Daniel Pick, Robert Garrett, David Kearns, Steven Wolfe
Clinical associate professors: Gordon Baustian, Robert Friedman, Michael Jung, Gerald Loos, Gerald McGowan, Jay Madorff, Larry Severndt, Monte Skaufle
Assistant professors: Cheryl Erwin, Clarence Kreiter, Marcys Rosenbaum
Associate professors (clinical): David Bedell, Harriet Eckernacht, Jill Endres, Adele Garwell, Michael Jurgens, Susan Langhein, Matthew Lanterman, Michael Maharry, Britt Marcusen, Jason Powers, Kelly Skelly, Anne Sullivan, Jason Wilbur
Adjunct assistant professor: Larry Shotestrom
Adjunct instructor: Veronica Wieland
Associates: Larry D. Beaty, Nicholas S. Galioto, Rayna Jebe, Dawn S. Lauridsen
Web site: http://www.uihealthcare.com/familymedicine

The Department of Family Medicine prepares primary care physicians. The department offers course work that is included throughout the four-year M.D. program. Twenty-five elective senior rotations give students opportunities for exposure to various Iowa communities through work in affiliated hospitals or connected facilities, in the department's model office on the University campus, and in preceptorships with selected family physicians throughout the state. There also is opportunity for independent study during the senior year.

Residency Program

The department directs a three-year residency program whose graduates are eligible for certification by the American Board of Family Practice. The residency trains physicians to provide continuing and comprehensive care to the total family unit, using a concept that integrates the patient, health professionals, and the physician into an efficient and effective health care team.

The program has a required core of rotations in adult medicine, natural child health, surgery, and behavior medicine. In addition, elective rotations are provided so that residents have some freedom to tailor training to their individual needs. It includes a broad spectrum of electives in internal medicine, pediatrics, obstetrics and gynecology, psychiatry, medical and surgical subspecialties, geriatrics, rural family practice, and community medicine.

The hospital-based clinical experience is a unique combination of exposure to practice at University of Iowa Hospitals and Clinics, where the patients have been referred by physicians from all over the state.

In addition to the traditional three-year family practice residency program, the Department of Family Medicine offers a rural track program with Pella Regional Health System, a five-year combined family practice/psychiatry residency program, and a four-year M.P.H. residency. The Pella Rural Track is open to one resident per year.

The first year is spent in Iowa City and the second and third years are spent in training at Pella, Iowa. The combined family practice/psychiatry residency program admits two residents yearly. The four-year program requires three years of residency and an additional fellow associate year to complete the M.P.H. curriculum. Graduates are eligible for...
certification by the American Board of Family Practice and by the American Board of Psychiatry.

Facilities
The department office, located on the University of Iowa Health Sciences Campus, contains faculty offices and the Family Care Center, where patients are seen by appointment. Patients are assigned either to faculty-staff physicians or to resident physicians, who provide medical care with faculty supervision. Each resident is responsible for his or her patients for the duration of the resident's training program. Emphasis is placed on teaching the principles of practice management, including organizational and administrative decision making, patient record and bookkeeping procedures, and chart auditing methodologies required for management of a private practice. The department has community-based clinics in southeast Iowa City and North Liberty, Iowa, and a rural satellite office located in Lone Tree, Iowa.

Courses
115:201 Principles of Family Medicine 2 s.h.
115:202 Spirituality and Health 1 s.h.
115:203 Medical Education Community Orientation 0 s.h.
115:300 Preceptorship in Family Medicine arr.
115:401 Family Medicine Clerkship, Broadlawns Hospital, Des Moines Family Health Center 4 s.h.
115:403 Lone Tree Family Medicine Clerkship 4 s.h.
115:404 Advanced Preceptorship in Family Medicine 4 s.h.
115:405 Subinternship in Family Medicine, University of Iowa arr.
115:406 Subinternship in Family Medicine, Iowa Lutheran 4 s.h.
115:407 Family Medicine Iowa Lutheran Preceptor 4 s.h.
115:408 U of I Family Medicine Clerkship 4 s.h.
115:409 Family Medicine, Mason City 4 s.h.
115:410 Independent Studies arr.
115:411 Rural Preceptorship in Family Medicine 4 s.h.
115:412 Urban Preceptorship in Family Medicine 4 s.h.
115:415 Subinternship in Family Medicine—Cedar Rapids 4 s.h.
115:416 Clerkship in Family Medicine—Cedar Rapids 4 s.h.
115:419 Family Medicine Clerkship, Davenport 4 s.h.
115:420 Family Medicine Clerkship, Sioux City 4 s.h.
115:421 Family Medicine Clerkship, Red Oak 4 s.h.
115:424 Family Medicine Clerkship, Waterloo 4 s.h.
115:429 Subinternship in Family Practice, Cedar Falls 4 s.h.
115:433 Subinternship in Family Medicine, Waterloo 4 s.h.
115:434 Family Medicine Clerkship, Waterloo 4 s.h.
115:435 Subinternship in Family Practice, Sioux City 4 s.h.
115:999 Family Medicine off Campus arr.

FREE RADICAL AND RADIATION BIOLOGY

Director: Larry W. Oberley
Professors: Bill Ballard, John Buatti, Garry R. Buettner, John E. Engenhart, Kevin Clegg, Larry W. Oberley
Professors emeritus: Frank Hsieh-Fu Cheng, James W. Osborne
Associate professors: Joseph Cullen, Frederick E. Domain Jr., Douglas R. Spitz, Neil L. Weinstein
Adjunct associate professors: Kyrstofl Reszka
Assistant professors: Kyle E. Brown, Robbin L. Davison, Kenneth Dornfeld, Sonya J. Franklin, Prabhat Goyal, Michael Knudson, Francis J. Miller
Adjunct assistant professors: Fiorenza Ianzini, Michael L. McCormick
Graduate degree: M.S., Ph.D. in Free Radical and Radiation Biology

The free radical and radiation biology program provides in-depth training and research experience in the study of physical, chemical, and biological effects of radiation. Another focus of the program is free radical biology. Free radicals, which are generated in great number by radiation, play a major role in the interaction of radiation with biological systems. Free radicals are of great interest to basic researchers and clinicians because of their role in a variety of diseases and pathological states, including cancer. The program stresses the importance of all of these areas to scientific research, clinical medicine, and the general public’s health.

Undergraduate Study
Three courses, 077:103 Radiation Biology, and 077:107 and 077:108 Special Topics: Advanced Undergraduates, are open to undergraduate students in the College of Liberal Arts and Sciences or the professional colleges. Students who want an overview of the biological effects of radiation, including the role of free radicals, will find 077:103 especially appropriate. These courses also are of interest to students who plan to enter medicine, nuclear medicine technology, environmental health, or related programs.

Graduate Programs
The Carver College of Medicine administers graduate programs in free radical and radiation biology; graduate degrees are granted through the Graduate College. See the Carver College of Medicine section and the Graduate College section of the Catalog for general information about study in medicine and graduate study at the University.

The M.S. and Ph.D. programs are open to graduate students with a background in physics, chemistry, mathematics, biology, health sciences, veterinary medicine, or engineering.

After completing the introductory course (077:103 Radiation Biology), students typically concentrate on a particular aspect of the field. Some students elect to focus on radiation biology, while others choose to emphasize free radical biology.

In addition to formal lectures and some structured laboratory exercises, plans of study for free radical and radiation biology students involve small-group conferences, discussions, and seminars. Students are encouraged to have at least one semester of experience as a teaching assistant and at least one semester as a research assistant. No registration is required and no academic credit is given for serving as a teaching assistant.

Special Programs
Postdoctoral training is available by arrangement with the program chair and individual faculty members.

Financial Support
Graduate students are supported as research assistants from funds available through research grants and contracts, or as teaching assistants from departmental funds. Individual postdoctoral
awards also may be available; the candidate and his or her faculty sponsor apply for them jointly.

Facilities

The Free Radical and Radiation Biology Program has a 300 kVp orthovoltage X-ray generator and other radiation sources, including a kilo-Curie Cs-137 irradiator. Students and staff also have access to other radiation sources, such as the Co-60 gamma source and linear accelerators in the Radiation Oncology Department. The program has a number of radiation detectors and counters, including liquid scintillation counters. The program also has ultraviolet/visible spectrophotometers; various types of equipment for densitometry, chromatography, and electrophoresis; molecular biology equipment, including thermal cyclers; an automatic cell counter and particle size; tissue culture facilities; Typhoon Phosphorimager; HPLC; Electron Spin Resonance Spectrometers; and nitric oxide analyzers.

Courses

**077:010 Radiation Biology**
Characteristics and biological effects of ionizing radiation. Offered fall semesters. Prerequisite: consent of instructor.

**077:013 Special Topics: Advanced Undergraduates**
Readings and/or laboratory experience. Offered fall semesters. Prerequisite: consent of instructor.

**077:018 Special Topics: Advanced Undergraduates**
Readings and/or laboratory experience. Offered fall semesters. Prerequisite: consent of instructor.

**077:072 Seminar: Free Radical and Radiation Biology**
Offered fall semesters.

**077:108 Seminar: Free Radical and Radiation Biology**
Offered spring semesters.

**077:207 Seminar: Free Radical and Radiation Biology**
Offered spring semesters.

**077:211 Medical Physics**
Characteristics of X-ray machines, x-ray accelerators, teletherapy devices; properties of X-rays and gamma rays, their interaction with matter; radiation exposure, depth dose measurements; radiation therapy. Offered spring semesters of even years. Prerequisite: B or higher in physics or consent of instructor. Same as G29-240.

**077:222 Free Radicals in Biology and Medicine**
Chemistry of free radicals, antioxidants; antioxidant enzymes—structure, function, regulation; targets of free radicals—lipids, proteins, DNA, free radicals in health and disease. Offered spring semesters of odd years. Prerequisite: 004.121 or 099.120.

**077:288 Molecular and Cellular Biology of Cancer**
Fundamental aspects of oncology at the cellular and molecular levels; mechanisms of cancer initiation and progression, oncogene action, DNA damage and repair, carcinogenesis by radiation, chemicals, viruses, tumor immunology, anticancer therapies. Offered spring semesters of odd years. Prerequisites: strong basic science background and consent of instructor. Same as 060:688.

**077:305 Research: Free Radical and Radiation Biology**

**077:306 Research: Free Radical and Radiation Biology**

**077:307 Research: Special Topics**

**077:308 Research: Special Topics**

**077:455 Topics in Free Radical Biology and Medicine**
New literature in area of free radicals. Offered fall semesters. Prerequisite: consent of instructor.

**077:456 Topics in Free Radical Biology and Medicine**
Offered spring semesters.

**077:457 Topics in Radiation and Cancer Biology**
New literature on the biological effects of radiation and cancer biology. Offered fall semesters. Prerequisite: consent of instructor.

**077:458 Topics in Radiation and Cancer Biology**
Offered spring semesters.

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**New Literature in Area of Free Radicals. Offered Fall Semesters.**

**077:545 Topics in Free Radical Biology and Medicine**
Offered spring semesters.

**077:547 Topics in Radiation and Cancer Biology**
Offered spring semesters.

**077:548 Topics in Radiation and Cancer Biology**
Offered spring semesters.

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**Clinical Associate professor emeritus:** Oscar C. Beasley

**Assistant professors:** Jatinder P. Ahluwalia, Christopher J. Benson, Kyle E. Brown, A. Brent Carter, Peter M. Cram, Kevin C. Doerschug, J. Scott Ferguson, Stephen D. Flach, Dawn M. Flacherty, Jacob W. Idio, Peter J. Kaboli, Laura C. Kajdoff, Peter Lerner, Predeep Singh, Thomas L. Warren, James E. Wooldridge


**Adjunct assistant professor:** Margaret LeMay


**Visiting assistant professors:** Catherine Pesek Bird, Mark M. Little

**Clinical instructors:** Philip A. Bear, Cam F. Bech, Christopher M. Covert, Wilson L. Davis Jr., R. Joe Ewing, Erthe F. Euret, Jonathan L. Fudge, James E. Glusser, Thomas B. Hakes, Jane C. Hendriks, Shelly A. Jones, Allan P. Latcham, Jack M. Lockart, James P. Lovell, Mark P. Runde, Rebecca S. Sniat, James G. Wisse, Diana Wright, Thomas L. Zurbriggen

**Associates:** Anjan Bhattacharyya, Shon Min Durala, Fanshad Elmii, Rufino Festin, Kevin A. Gien, Jane A. Rowat

**Web site:** http://www.int-med.uiowa.edu/

The discipline of internal medicine is concerned with the diagnosis, prevention, and treatment of diseases of adults. The educational, patient care, and research activities of the department cover all facets of internal medicine, including general internal medicine and primary care as well as the specialized areas of allergy-immunology, cardiology, clinical epidemiology, clinical pharmacology, oncology, endocrinology, pulmonary medicine, gastroenterology, hematology, infectious disease, renal and hypertensive disease, and rheumatology. The department is organized into divisions in order to carry out these many functions.
Medical Student Training

Members of the department bear a major share of the teaching of first- and second-year medical students. In the first year, internal medicine faculty members participate in 060:116 Medical Cell Biology, 050:240 Human Organ Systems, and 148:251 Principles of Medical Immunology. In the second year, they participate in 071:105 Pharmacology for Health Sciences: Medical and 061:103 Principles of Infectious Disease. The department’s faculty members are key participants in 050:162, 050:163, 050:164, and 050:165 Foundations of Clinical Practice I-IV.

In the third year, faculty members teach students for six focus weeks in 078:101 Inpatient Internal Medicine and for four weeks in 078:102 Outpatient Internal Medicine at University of Iowa Hospitals and Clinics, the Veterans Affairs Medical Center, or hospitals of the Des Moines Area Medical Education Consortium. Students actively participate as members of an inpatient ward team in 078:101 and in the evaluation and management of patients at outpatient internal medicine clinics in 078:102.

Teaching takes place in the laboratories of University Hospitals and Clinics, the Veterans Affairs Medical Center, and Iowa Methodist Hospital in Des Moines.

In the fourth year, students may select a clinical experience to fit their own career goals from courses offered in general medicine, subspecialties, intensive care, and a subinternship program.

Residencies and Postgraduate Work

The department offers a residency training program in internal medicine. In addition, most of the department’s specialty divisions offer clinical and research fellowships for periods of two to three years. These permit the development of special knowledge and skills relevant to the specialty. Postdoctoral fellows who have received their doctorates also are accepted for programs in which the major focus is laboratory research.

Facilities

Teaching takes place in the medical services and in the laboratories of University of Iowa Hospitals and Clinics in Iowa City, the Veterans Affairs Medical Centers in Iowa City and Des Moines, and Iowa Methodist Hospital in Des Moines.

Courses

078:101 Inpatient Internal Medicine 4 s.h.
078:102 Outpatient Internal Medicine 4 s.h.
078:202 Subinternship in Internal Medicine 4 s.h.
078:204 Community-Based General Internal Medicine 4 s.h.
078:205 Continuity of Care in Outpatient Internal Medicine 4 s.h.
078:212 Nutrition and Lifestyle Change 2 s.h.
078:217 Integrated Topics in Infectious Diseases 4 s.h.
078:219 Subinternship in Internal Medicine at VAMC, Des Moines 4 s.h.
078:220 Subinternship General Internal Medicine and ICU, Des Moines 4 s.h.
078:221 Public Health Medicine, Des Moines 4 s.h.
078:225 General Medicine Consult Service, IMMC 4 s.h.
078:250 Clinical Allergy Immunology 4 s.h.
078:253 Clinical Immunology and Immunopathology: Laboratory and Clinical Correlations 4 s.h.
078:290 Research in Allergy Immunology 4 s.h.
078:300 Clinical Cardiology 4 s.h.
078:304 Electrocardiography 4 s.h.
078:325 Clinical Cardiology Coronary Care Experience, Iowa Methodist, Des Moines 4 s.h.
078:333 Internal Medicine ICU off Campus 4 s.h.
078:400 Clinical Endocrinology 4 s.h.
078:440 Endocrine Research 4 s.h.
078:450 Clinical Gastroenterology 4 s.h.
078:490 Research in Gastroenterology 4 s.h.
078:501 Oncology 4 s.h.
078:502 Clinical Hematology 4 s.h.
078:550 Clinical Infectious Disease 4 s.h.
078:590 Research in Infectious Disease 4 s.h.
078:600 Pulmonary Disease 4 s.h.
078:601 Research in Pulmonary Disease 4 s.h.
078:625 Pulmonary Medicine and Critical Care, Gundersen Clinic 4 s.h.
078:650 Nephrology 4 s.h.
078:655 Adult and Pediatric Nephrology and Hypertension 4 s.h.
078:662 Medical and Pediatric Endocrinology 4 s.h.
078:690 Research in Renal, Hypertension, and Electrolyte Disorders 4 s.h.
The Iowa Medical Scientist Training Program (MSTP) is a combined M.D./Ph.D. program that prepares trainees for careers in academic medicine, with emphasis on basic and clinical research. The program provides an effective means for integration of graduate education and doctoral research with the full complement of clinical studies necessary for the medical degree. With few exceptions, requirements for the combined M.D./Ph.D. degrees can be completed in seven to eight years of continuous study.

Curriculum

The program is designed to integrate the scientific approach and clinical medicine. In the first two years of the program, trainees enroll in the basic science and introductory clinical portions of the Carver College of Medicine curriculum. This provides a broad exposure to the language and organizing concepts that form the foundation for a career as a physician scientist. Trainees begin the research component of the graduate phase of the program through summer laboratory rotations, research presentations by MSTP faculty and students, and a student-sponsored seminar series. They also participate in MSTP grand rounds, a forum for patient-based discussions that emphasizes how science and medicine intersect.

The first-year curriculum addresses normal structure and function of human organ systems and emphasizes relationships among different disciplines. During the first semester, trainees take courses in biochemistry, gross anatomy, cell biology, and medical genetics. The second semester presents an integrated systemic core, which incorporates physiology, histology, and embryology and focuses on the development, structure, and function of human organ systems. Discipline-specific basic science instruction continues through the second semester with the medical neuroscience and immunology courses.

The second-year curriculum emphasizes abnormal structure and function of human organ systems. Trainees take courses in pathology, microbiology, and pharmacology.

Throughout the first two years of study, students receive instruction in the foundations of clinical practice, including patient experience in medical history taking and physical examination. At the end of the second year, all trainees take Step One of the U.S. Medical Licensing Exam and then complete the basic core clinical clerkship in internal medicine. They gain broad exposure to the spectrum of human disease and experience with direct patient care before they enter the graduate phase of training.

At the beginning of the third year, trainees enroll in a graduate department or interdisciplinary graduate program.

The focus of the graduate years of study is engagement in academic and research experiences that promote the trainees’ development into independent investigators. Clinical contact is maintained during this phase of training through participation in seminar programs, MSTP grand rounds, and Clinical Connections, a course that provides the opportunity for mentored clinical experiences.

Upon completing the Ph.D. dissertation, trainees return to the Carver College of Medicine curriculum to complete the clinical clerkship requirements appropriate to their career goals. During this phase, trainees bring a sophistication in the scientific approach to problem solving that they apply to human disease. They renew and develop clinical skills acquired in their early training and reinforce their understanding of the scientific basis of disease through continued participation in MSTP grand rounds. Upon completion of the clinical curriculum, trainees are awarded the M.D. and Ph.D. degrees.

Most graduates of the program elect to enter residency programs in clinical medicine and embark on careers as medical school faculty members in clinical disciplines with opportunities for basic and applied research. Other graduates accept academic appointments in basic science departments and spend a major part of their professional activity in biomedical research and teaching.

Admission

Applicants must meet requirements for admission to the Carver College of Medicine and the Graduate College at The University of Iowa. Trainees are expected to have completed requirements for a bachelor’s degree at an accredited academic institution. In addition to outstanding academic credentials, including strength in biological, physical, and mathematical sciences, applicants must demonstrate aptitude for and commitment to scientific research, usually through productive research experience as undergraduates. Applicants normally are admitted to the first year of the program, but consideration also is given to individuals currently enrolled in the Carver College of Medicine who request admission with advanced standing.

Application

The Carver College of Medicine participates in the American Medical College Application Service (AMCAS). Program applicants should instruct AMCAS to forward their credentials to the Carver College of Medicine (IA131). At the same time, applicants should submit a separate MSTP application form, which is available on the MSTP web site or from the MSTP office. Applications should be submitted as early as possible to allow careful review by the admissions committees of the Medical Scientist Training Program and the Carver College of Medicine.

All candidates must take the Medical College Admissions Test (MCAT), preferably in the spring and no later than the summer of the calendar year in which they submit their application.

Application to the Graduate College is not required with the program application. Trainees admitted to the program receive assistance with Graduate College enrollment.

Financial Support

Trainees receive stipend and tuition support from a National Institutes of Health MSTP training grant to The University of Iowa, supplemented by other institutional and individual awards. Students in the graduate phase of training receive support from their graduate departments and interdisciplinary programs. The program office also helps selected trainees apply for competitive national awards for outstanding academic and research achievement.

Courses

050:211 MSTP Research 
Prerequisite: enrollment in Medical Scientist Training Program. 
1 s.h.

050:212 MSTP Clinical Connections
Experience with physician-scientist preceptor in medical interviewing, physical examination, and patient presentation through direct-patient interaction. Prerequisite: enrollment in graduate phase of Medical Scientist Training Program.

Microbiology

Head: Michael A. Apicella

Professors: Michael A. Apicella, Robert F. Ashman (Internal Medicine), Gail A. Bishop (Internal Medicine), John E. Butler, Steven Clegg, Charles D. Cox, Lacy Daniels, Michael G. Feiss, E. Peter Greenberg, John T. Hardy, Caroline S. Harwood, William Johnson, David M. Lubhart (Urology), Stanley Perlman (Pediatrics), Timothy L. Ratliff (Urology), George V. Stauter, Mark F. Szlinski, C. Martin Stoltzth, Jerrold P. Weiss (Internal Medicine), Mary E. Wilson (Internal Medicine)

Professors emeriti: John G. C. Jr., David T. Gibson, Louis G. Hoffmann, Erch W. Six, Donald P. Stahly

Associate professors: Lee-Ann Allen (Internal Medicine), Morris O. Dalley (Pathology), Bradley D. Jones, Linda L. McCarr, Richard J. Roller, David S. Weiss

Associate professor emeritus: Jose E. Rodriguez

Adjunct associate professor: Mary J. Gulchris


Adjunct assistant professor: Marzia L. Cords

Visiting lecturer: Linda M. Knudson

Undergraduate degree: B.S. in Microbiology

Undergraduate nondegree program: minor in Microbiology

Graduate degrees: M.S., Ph.D. in Microbiology

Web site: http://www.medicine.uiowa.edu/microbiology

Microbiology is the branch of biological sciences that deals with the smallest living things: bacteria, archaea, fungi, algae, protozoa, and viruses. It is coupled with immunology, the study of the response of higher organisms to foreign substances.

Microbiology and immunology are at the forefront of the modern biological revolution. Microbes are often the experimental subjects of choice for examining basic genetic and biological phenomena because of their small size, rapid growth rate, and relative simplicity. A significant fraction of contemporary biochemical research employs microbiological and immunological methods.

Some research areas in which both practical and theoretical advances are occurring include the study of microbial species and viruses that infect animals, including man, plants, and other microbes; the use of comparative genomics, gene...
expression profiling, and recombinant DNA methods to analyze basic biological processes and generate valuable products; the nature and occurrence of microbial life in extreme or unusual environments; microbial synthesis and modification of antibiotics and other natural products; the role of microbes in stabilization of the biosphere by recycling and detoxifying waste products; the genetics and regulation of metabolic processes; and the genetics and regulation of the immune response, including characterization of mechanisms used by bacteria to signal one another and characterization of interactions between different types of immune cells and their targets.

Microbiology is an excellent major for undergraduate students who want a good general education with emphasis on an important and interesting branch of biological sciences. For the graduate with a bachelor's degree in microbiology, positions are available in government, hospitals, public health laboratories, research laboratories, and industrial laboratories (food, dairy, chemical, pharmaceutical, and genetic engineering companies).

Students who continue beyond the bachelor's degree have more advanced career opportunities in these same areas as well as college and university teaching.

**Undergraduate Program**

The College of Liberal Arts and Sciences administers undergraduate programs and grants undergraduate degrees in microbiology.

**Bachelor of Science**

Undergraduate students majoring in microbiology at The University of Iowa must complete the General Education Program of the College of Liberal Arts and Sciences. They must complete a minimum of 21 s.h. in microbiology to obtain a B.S. degree, including at least 12 s.h. taken at The University of Iowa. All University of Iowa courses must be chosen from those numbered 061:147 and above. No more than 2 s.h. of 061:163 may be counted toward the 21 s.h. requirement. Students may count more than 2 s.h. of 061:163 may be counted toward the 21 s.h. requirement. Students may count 061:218, but not 061:220, toward this requirement.

Students who continue beyond the bachelor's degree have more advanced career opportunities in these same areas as well as college and university teaching.

- **004:011-004:012 Principles of Chemistry I-II** 8 s.h.
- **004:121-004:122 Organic Chemistry I-II** 6 s.h.
- **004:141 Organic Chemistry Laboratory** 3 s.h.
- **029:011-029:012 College Physics** 8 s.h.
- **099:120 Biochemistry and Molecular Biology I** 3 s.h.
- **099:130 Biochemistry and Molecular Biology II** 3 s.h.
- **One of these:**
  - 22M:016 Calculus for the Biological Sciences 4 s.h.
  - 22M:021 Calculus and Modeling I 4 s.h.
  - 22M:025 Calculus I 4 s.h.

In addition, the following courses may be recommended for some students:

- **08N:080 Nonfiction Writing** 3 s.h.
- ***171:161 Introduction to Biostatistics** 3 s.h.

*Some medical schools require a biostatistics course for admission.*

**Four-Year Graduation Plan**

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

- **Before the third semester begins:** 002:010; 004:011, and 004:012, an approved calculus class; and at least one-quarter of the semester hours required for graduation
- **Before the fifth semester begins:** 004:121, 004:122, and 004:141; 061:157; and at least one-half of the semester hours required for graduation
- **Before the seventh semester begins:** five more courses in the major and at least three-quarters of the semester hours required for graduation
- **Before the eighth semester begins:** another 10-12 s.h. of course work

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

**Honors**

Microbiology majors who are members of the University Honors Program may enroll in the honors program in microbiology. The University Honors Program requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33. Microbiology honors students must also maintain a g.p.a. of at least 3.33 in microbiology courses. The program requires 25 s.h. of course work in microbiology, including 6 s.h. in 061:171 Honors Undergraduate Research in Microbiology, which constitutes an introduction to experimental research. At the end of the research, students present written and oral reports. Students who successfully complete these requirements receive the B.S. degree with honors.

**Minor**

An undergraduate minor in microbiology requires at least 15 s.h. of credit in microbiology courses with a g.p.a. of at least 2.00. Of these 15 s.h., at least 12 s.h. must be taken at The University of Iowa. All University of Iowa courses may be chosen from those numbered 061:147 and above.

No more than 2 s.h. of 061:161 or 061:171 and 2 s.h. of 061:163 may be counted toward the 15 s.h. requirement. Students may count 061:218, but not 061:220, toward this requirement.

**Graduate Programs**

The Carver College of Medicine administers graduate programs in microbiology. Graduate degrees are granted through the Graduate College. See the Carver College of Medicine introductory section and the Graduate College section of the Catalog for general information about study in medicine and graduate study at the University.

Generally, students admitted to the graduate program pursue the Ph.D. degree. All students admitted as candidates for advanced degrees are expected to assist in departmental teaching.

The objectives of the graduate programs in microbiology are to help students become highly qualified in research and in teaching of microbiology.

Six areas are included in the program: pathogenic bacteriology, microbial genetics, immunology, microbial physiology, animal virology, and bioinformatics. Several of these specialized areas involve interdisciplinary training both within and outside of the department, so students receive broad experience during their course of study. Interdisciplinary Ph.D. programs in genetics, immunology, and molecular biology also are available.

During their first year, students do not choose a mentor immediately but are advised by the Graduate Student Advisory Committee. During this period, all students rotate in three laboratories of their choice. At the end of the first year, students choose a research supervisor who serves as chair of their advisory committee. This committee is the source of intellectual and research guidance for the student's training.

The department cooperates with other departments in the various colleges on campus, affording ample opportunity for students to avail themselves of diverse course offerings, seminars, and research programs. For example, courses and seminars in clinical laboratory microbiology, immunology, genetics, cellular and molecular biology, biocatalysis/biotechnology, and electron microscopy are available.

**Master of Science**

Candidates for the M.S. are required to take a minimum of 12 s.h. of microbiology courses in
three of the six different subdisciplines available in microbiology. Students may substitute a course taken previously (at The University of Iowa or elsewhere) for the course requirements, upon obtaining approval from their advisory committee. Additional course requirements or selections depend on students’ interests and the advice of the examining committee. Students must write a thesis based on their own research and defend it satisfactorily in an oral examination. No more than 9 s.h. of credit for thesis research may be counted toward the Graduate College’s minimum requirement of 30 s.h. for the Master of Science.

Doctor of Philosophy

The Ph.D. requires a minimum of 15 s.h. of credit in formal courses for which graduate credit is given. Students may substitute a course taken previously (at The University of Iowa or elsewhere) for the course requirements, upon obtaining approval from the Ph.D. advisory committee. Students also must pass a comprehensive examination before their sixth semester in the program and write a thesis based on their own research. The thesis must be defended satisfactorily in an oral examination.

Admission

Prospective graduate students should become familiar with the general admission requirements of the Graduate College. Departmental requirements include a review and formal vote by the faculty before students are admitted. Before beginning graduate work, students must have completed courses in biological sciences, chemistry (inorganic and organic), mathematics including calculus, and physics. Students admitted without the above course work must take it during the first year of graduate school. Students should have a g.p.a. of at least 3.00 in order to be admitted to the graduate program in microbiology. Preference is given to students applying for the Ph.D. program.

Facilities

The department shares the Bowen Science Building with the Departments of Anatomy and Cell Biology, Biochemistry, Pharmacology, and Physiology and Biophysics. Laboratory space and modern equipment are available for teaching and research.

Courses

061:005 Microbes and Our World 2 s.h. Bacteria, viruses, and parasites and their role in shaping human health, industry, current affairs, history.

061:103 Principles of Infectious Diseases 5 s.h. Principles and methods essential to study of microorganisms, their isolation and identification, microorganisms in infectious diseases; current immunology concepts. Prerequisite: medical student standing.

061:104 Principles of Infectious Diseases—Physician Assistant 4 s.h. Principles and methods essential to study of microorganisms, their isolation and identification, microorganisms in infectious diseases; current immunology concepts. Prerequisite: physician assistant student standing.

061:112 Health Sciences Microbiology 4 s.h. Medical microbiology; bacteriology, immunology, pathogenic bacteriology, virology, mycology, parasitology. Prerequisite: pre-pharmacy student standing.

061:113 Dental Microbiology 3 s.h. Medical microbiology: bacteriology, immunology, pathogenic bacteriology, virology, mycology, parasitology. Prerequisite: dental student standing.

061:147 Survey of Immunology 4 s.h. Major features of the evolutionary, ontogenic, and comparative development of innate and adaptive immune systems and their functions at the cellular and molecular levels. Prerequisites: strong background in biology, including physiology. Pre- or corequisite: biochemistry.

061:157 General Microbiology 5 s.h. Principles of microbial diversity, microbial genetics, physiology and metabolism, pathogenic microbiology; virology, immunology, industrial and environmental microbiology; laboratory emphasis on basic techniques. Prerequisites: 002:010 and 002:011. Corequisite: 004:121.

061:159 Pathogenic Bacteriology 5 s.h. Pathogenic bacteria, with emphasis on mechanisms of pathogenicity; laboratory methods for isolation, identification; laboratory emphasis on advanced methods for study of pathogenic bacteria. Prerequisites: grade of C or higher in 061:157 and consent of instructor.

061:160 Microbial Physiology 3 s.h. Bacterial genomes, cell structure, energy metabolism, biosynthesis, mechanisms of signal transduction and regulation; laboratory supplement in 061:180. Prerequisite: grade of C or higher in 061:157.

061:161 Undergraduate Research in Microbiology arr. Experimental research under faculty supervision. Prerequisite: grade of C or higher in 061:157 and consent of instructor.

061:163 Seminar: Microbiology 2 s.h. Current topics in microbiology; immunology. Prerequisite: grade of C or higher in 061:157.

061:164 Nursing Microbiology 4 s.h. Emphasis on nursing microbiology; principles of immunology. Prerequisite: pre-nursing student standing or consent of instructor. Pre- or corequisites: 002:002 or 002:010 or 002:021.

061:168 Introduction to Animal Viruses 3, 5 s.h. Basic physical, chemical, biological properties of animal viruses, their association with human disease; optional laboratory with emphasis on methods in basic, clinical, and molecular virology. Prerequisites: grade of C or higher in 061:157 and consent of instructor.

061:170 Microbial Genetics 3 s.h. Genetics of bacteria, viruses; laboratory supplement in 061:175. Prerequisite: grade of C or higher in 061:157 or consent of instructor.

061:171 Honors Undergraduate Research in Microbiology arr. Experimental research under faculty supervision. Prerequisites: junior or senior standing and g.p.a. of at least 3.20.

061:175 Microbial Genetics Laboratory 3 s.h. Basic principles of genetic analysis of bacteria and bacteriophage. Prerequisite: consent of instructor. Pre- or corequisite: 061:170.

061:180 Microbial Physiology Laboratory 2 s.h. Laboratory practical. Identification and growth of bacteria; bacterial function; nutrient transport, metabolic pathways, enzymes. Prerequisite: consent of instructor. Corequisite: 061:160.

061:188 Microbial Biotechnology 3 s.h. Industry-relevant modern microbiology, molecular biology, fermentation, cell culture, downstream processing, overview of industrial organisms; processes to make enzymes, bulk chemicals, antibiotics; safety, economic, regulatory aspects. Prerequisite: grade of C or higher in 061:157.

061:190 Web-Based Nursing Microbiology 4 s.h. Nursing microbiology; principles of immunology; web-based instruction. Prerequisite: pre-nursing student standing or consent of instructor. Pre- or corequisite: 002:002 or 002:010 or 002:031.

061:201 Graduate Immunology I 3 s.h. Courses in college biology: genetics, general chemistry, and introductory immunology. Recommended: course in biochemistry. Same as 149:201.

061:202 Graduate Immunology II 3 s.h. Intermediary adherence in the immune system, regulation of inflammation and lymphocyte traffic, immunological tolerance, autoimmune diseases, immune responses to viruses and parasites; problem-oriented experimental approaches, relevant journal articles. Same as 148:202.

061:207 Advanced Topics in Immunology 3 s.h. Literature, skill in scientific presentation. Prerequisites: 061:201 and 061:202, or 148:201 and 148:202, or equivalents; and consent of instructor. Same as 148:221.


061:217 Integrated Topics in Infectious Diseases 1 s.h. Clinical cases used to raise questions in host-parasite interactions; case/scientific excellence followed by related journal club discussions at next class session. Prerequisite: consent of instructor.

061:218 Microscopy for Biomedical Research 3 s.h. Methods of tissue preparation for transmission, scanning electron microscopy; fixation, embedding, ultra-thin sectioning and staining, theory, use, maintenance of electron microscopes; associated photographic techniques; advanced techniques such as immuno EM, freeze-fracture. Prerequisites: a biological science course and consent of instructor. Same as 002:218, 060:218.


061:226 Advanced Topics in Microbial Development 2 s.h. Lectures and journal club discussions on molecular and cellular mechanisms of bacterial and viral adaptational and survival in animate and inanimate environments. Prerequisite: consent of instructor. Pre- or corequisites: 142:220, 061:160 or 061:260, and 061:170 or 061:270.

061:259 Graduate Pathogenic Bacteriology 5 s.h. Pathogenic bacteria, with emphasis on mechanisms of pathogenicity; laboratory methods for isolation, identification; laboratory emphasis on advanced methods for study of pathogenic bacteria; research literature. Prerequisite: consent of instructor.

061:260 Graduate Microbial Physiology 3 s.h. Bacterial genomes, cell structure, energy metabolism, biosynthesis, mechanisms of signal transduction and regulation; laboratory supplement in 061:180.

061:261 Graduate Research in Microbiology arr. Prerequisites: advanced degree candidate in microbiology and consent of instructor.

061:262 Microbiology Seminar Journal Club 1 s.h. Student-led discussions of recent article(s) of departmental seminar speaker; opportunities for student-speaker interaction. Prerequisite: consent of instructor.

061:263 Graduate Student Research Seminar 1 s.h. Presentation of thesis work in progress. Prerequisite: graduate standing in microbiology.

061:265 Topics in Virology Literature 1 s.h. Papers of current interest in primary virology literature. Prerequisite: consent of instructor.

061:267 Graduate Introduction to Animal Viruses 3, 5 s.h. Basic physical, chemical, biological properties of animal viruses, their association with human disease; optional laboratory with emphasis on methods in basic, clinical, and molecular virology; discussion topics in the primary literature. Prerequisite: consent of instructor.

061:268 Biology and Pathogenesis of Viruses 2 s.h. Molecular biology of animal DNA and RNA viruses, interaction of these viruses with eucaryotic cells; mechanisms of viral latency; persistence, cellular transformation, oncogenesis; virology literature. Prerequisites: 061:168 or 061:267 or equivalent, and biological sciences major.

061:270 Graduate Microbial Genetics 3 s.h. Genetics of bacteria,bacillus, short supplementary laboratory work in 061:271.

061:271 Graduate Microbial Genetics Laboratory 3 s.h. Basic principles of genetic analysis in bacteria. Prerequisite: consent of instructor. Pre- or corequisite: 061:260.

061:275 Perspectives in Biocatalysis 2 s.h. Applied enzymology, protein design, structure-activity relationships, biosensor technology, microbial transformations, biodegradation of environmental pollutants. Same as 004:275, 046:275, 052:275, 053:275, 090:275.
061:279 Bacterial Diversity 4 s.h.
Isolation, cultivation, and biochemical tests of bacteria from various habitats; physiological and molecular genetics of bacterial groups. Prerequisites: grade of C or higher in 061:157; 061:160 or 061:170 or equivalent; and consent of instructor.

061:280 Graduate Microbial Physiology Laboratory 2 s.h.
Isolation and growth of bacteria, bacterial function products, nutrient transport, metabolic pathways, enzymes. Prerequisite: consent of instructor.

061:288 Graduate Microbial Biotechnology 3 s.h.
Industry-relevant microbiology, molecular biology, fermentation, cell culture, downstream processing, overview of industrial organisms, processes to make enzymes, bulk chemicals, antibiotics; safety, economic, regulatory aspects. Prerequisite: microbiology major or consent of instructor.

061:299 Mechanisms of Parasitism Journal Club 1 s.h.
Same as 142:299.

NEUROLOGY
Head: Antonio R. Damasio
Professors: Harold F. Adams Jr., Adel Affi (Pediatrics/Anatomy and Cell Biology), Kevin Campbell (Physiology and Biophysics), Antonio R. Damasio, Hanna Damasio, Jun Kimura, Ramon Lim, Jane Paulsen (Psychiatry), Matthew Rizzo, Robert Rodnitzky, William Talman, Daniel Tranel (Psychology), Gary Van Hoesen (Anatomy and Cell Biology), Michael Wall (Ophthalmology and Visual Sciences), Thoru Yamada
Professors emeriti: William E. Bell (Pediatrics), Arthur L. Benton (Psychology)
Adjunct professor: Charles Rockland
Associate professors: Ralph Adolphs (Neurosurgery), Steven Anderson, Antoine Bechara, Daniel Bonthius (Pediatrics), Beverly Davidson (Internal Medicine), Patricia Davis, M. Eric Dyken, Thomas Granner, Mark Grauer, Matthew Howard (Neurology), Robert D. Jones, Pratul Kekar, Andrew Lee (Ophthalmology and Visual Sciences/Surgery), Katherine D. Mathews (Pediatrics), Henry Paulson, E. Torage Shavapour, James B. Worrall
Assistant professors: Ed Au, Natale Demburg, Deema Fattal, Lynn Geeweke, Erik St. Louis, Ergun Uc, Malcolm Yeh
Adjunct assistant professor: Asgar Zaheer
Associates: Coleman Martin, Shwari Raman
Postdoctoral associates, fellows: Pedro Gonzalez, Stephanie Preston, Evan Wenger
Web site: http://www.neurology.uiowa.edu

Neurology is the branch of medical science concerned with diagnosis and management of disorders of the brain, spinal cord, peripheral nervous system, and muscle. Teaching of medical, postdoctoral, and graduate students, carefully integrated with patient care, have long been the department’s hallmark.

The department offers clinical and clinical research 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 clinical electrophysiology, pediatric neurology, psychiatry, and neuropsychiatry is part of this training. The department also offers research opportunities in various fields of neuroscience, including neuropsychology, neuromaging, and neuroanatomy, to candidates for the Doctor of Philosophy in neuroscience and psychology.

Investigative interests of the faculty center on cognitive neuroscience, degenerative diseases, cerebrovascular disease, neurogenetics, neuromuscular diseases, electrophysiological correlates of central and peripheral nervous system disease, growth factors in the nervous system, control and regulation of autonomic functions, neuro-ophthalmology, movement disorders, and pain management.

Courses

064:011 Clinical Neurology 2, 4 s.h.
Experience in clinical neurology through ward work and case-based conferences linked to required reading; neurologic examination, diagnosis of neurologic problems is emphasized; four-week clerkship.

064:238 Introductory Neuropsychological Assessment 1 s.
Standard behavioral assessment procedures; administration of neuropsychological tests under staff supervision; preparation of integrated reports on collected data; involvement in research project.

064:239 Advanced Neuropsychological Assessment 1 s.
Continuation of 064:238.

064:240 Topics in Cognitive Neuroscience 3 s.h.
Key topics in the neural basis of human cognition; research literature. Recommended: graduate courses in basic neuroscience, cognitive psychology. Same as 132:240.

064:302 Advanced Inpatient Neurology 4 s.h.

064:303 Advanced Outpatient Neurology 4 s.h.

064:310 Cerebrovascular Disease 3 s.h.
Experience in evaluation, management of patients with cerebrovascular diseases; conferences, clinical rounds.

064:998 Neurology on Campus arr.

064:999 Neurology off Campus arr.

NEUROSURGERY
Head: Matthew A. Howard
Associate professor: Timothy C. Ryken
Assistant professors: Gregory Froitz, Hiroto Kawasaki
Web site: http://www.neurosurgery.uiowa.edu

The Department of Neurosurgery provides a unique experience oriented toward patient care and basic research concerning diseases and physiology of the nervous system. Students of neurosurgery develop awareness of the place of neurosurgery for treatment of head and spine trauma, vascular disorders, tumors of the brain and spinal cord, pain and peripheral nerve abnormalities, and degenerative spine pathology. The surgical treatment of epilepsy and movement disorders is included.

The department's clinical courses are designed around patient-centered discussions interwoven with operating room experiences. Lectures and conferences are scheduled on specific topics. Individual fourth-year medical students have access to special expertise in selected topics of investigation regarding the central nervous system and to a clinical course through special arrangements with the faculty.

Faculty

Special faculty strengths are centered in the physiology of spinal cord trauma, epilepsy, auditory brain function and pain, primary brain tumor genetics, central nervous system tissue culture, spinal column biomechanics, and movement disorders. The neuroscience department has particular expertise in clinical management across the spectrum of central nervous system diseases.

Facilities

Multiple fully-equipped laboratory space is available to support scientific research in the central nervous system. Faculty and technical assistance is available in all laboratories.

Courses

Neurosurgery courses are open only to medical students and qualified students in associated health sciences.

183:227 Subintemship in Neurosurgery 4 s.h.
Advanced clinical clerkship in neurological surgery; emphasis on diagnosis and operative management of surgical neurological disease.

183:228 Research in Neurological Surgery 4 s.h.
Laboratory investigation of spinal cord injury, spinal column biomechanics and instrumentation, electrophysiology of pain, epilepsy and hearing, molecular genetics and physiology of brain tumors.

183:999 Neurosurgery off Campus arr.
Arranged by student with department approval.

NUCLEAR MEDICINE TECHNOLOGY

Director: Anthony W. Knight
Medical director: Michael M. Graham
Technical director: John A. Bricker
Professors: Michael M. Graham, Mark T. Madsen
Professor emeritus: Frank H. Cheng
Associate professors: David L. Bushnell, Richard Hichwa, Malik E. Juweid, Daniel Kahn, G. Leonard Watkins
Associate professor emeritus: Karim Rezai
Clinical associate professor: James A. Ponto (Pharmacy)
Adjunct lecturer: Anthony W. Knight
Associate: Yuxel Menda
Undergraduate degree: B.S. in Nuclear Medicine Technology

The Nuclear Medicine Technology Program is one of five academic units in the Division of Associated Medical Sciences. For detailed information on the division’s general academic policies, see “Division of Associated Medical Sciences” in the Catalog.

Nuclear medicine technology is a medical specialty that uses radioactive tracers for diagnostic, therapeutic, and research purposes.

Nuclear medicine technologists generally work in hospitals and clinics. At the heart of nuclear medicine technology is the use of sophisticated detectors and computers to trace the movement and localization of radioactive tracers in the human body.

Other basic job responsibilities may include radiation safety; quality control; radiopharmaceutical preparation and administration; and general patient care. In all these functions, the nuclear medicine technologist works hand-in-hand with nuclear medicine physicians, health physicists,
radiopharmacists, and radiochemists as an integral part of a highly trained specialty team. The Nuclear Medicine Technology Program at The University of Iowa is fully accredited by the Joint Review Committee on Educational Programs in Nuclear Medical Technology (JRCNMT). Fulfillment of the requirements established by the JRCNMT Accreditation Board involves three years of preclinical work in the College of Liberal Arts and Sciences and the Carver College of Medicine, and a minimum of 12 months of professional clinical experience, available at University of Iowa Hospitals and Clinics and the Iowa City Veterans Affairs Medical Center.

Upon satisfactory completion of the four-year program, students receive the Bachelor of Science from the Carver College of Medicine and a certificate of training. Graduates are eligible for national certification as nuclear medicine technologists.

The required courses in the first and sophomore years emphasize the physical and biological sciences, which provide a basic background for further development in the junior year.

Applicants are strongly advised to pursue a course of study that is applicable to a baccalaureate degree, most commonly in biology, chemistry, biochemistry, or microbiology. In this way, students who are not admitted to the Nuclear Medicine Technology Program can complete a degree in their chosen area.

The following are recommended courses.

**FIRST YEAR**

- **004:011-004:012 Principles of Chemistry I-II** 8 s.h.

**SOPHOMORE YEAR**

- **002:010-002:011 Principles of Biology I-II** 8 s.h.
- One of these:
  - 22C:001 Computer Literacy 3 s.h.
  - 22C:005 Introduction to Computer Science 3 s.h.
  - 22C:016 Computer Science I 4 s.h.

**JUNIOR YEAR**

- **027:053 Human Anatomy** or **060:001 Principles of Human Anatomy** 3 s.h.
- **029:011-029:012 College Physics** 8 s.h.
- One of these:
  - 22S:101 Biostatistics 3 s.h.
  - 22S:102 Introduction to Statistical Methods 3 s.h.
  - 171:161 Introduction to Biostatistics Advanced concepts in chemistry, biology, or physics based on alternative major, possible minor, interest, career goals

**SENIOR YEAR**

The curriculum of this clinical year is organized in accordance with the “Essentials of an Accredited Educational Program in Nuclear Medicine Technology.” Courses are taught in the following areas: radiopharmacy, radiobiology, radiation safety, patient care, medical terminology, anatomic and physiologic bases of nuclear medicine procedures, physics and instrumentation, administration and management, medical and professional ethics, mathematics and statistics of nuclear medicine, and computer applications in nuclear medicine. Clinical rotations focus on nuclear imaging, clinical radiopharmacy, computer applications, and quantification of radioactivity in vivo and in vitro.

The clinical year consists of these courses.

- 074:101 Principles of Nuclear Medicine I 6 s.h.
- 074:102 Introductory Clinical Nuclear Medicine 6 s.h.
- 074:103 Principles of Nuclear Medicine II 3 s.h.
- 074:104 Intermediate Clinical Nuclear Medicine 9 s.h.
- 074:105 Advanced Clinical Nuclear Medicine 6 s.h.

For course descriptions, see “Radiology” in the Catalog.

**Admission**

Prerequisites for admission to the Nuclear Medicine Technology Program include the following:

- A minimum of 94 s.h. in all course work, with a cumulative g.p.a. of at least 2.50;
- completion of the College of Liberal Arts and Sciences General Education Program components in rhetoric, foreign language, interpretation of literature, humanities, historical perspectives, quantitative or formal reasoning, social sciences (sociology and psychology are recommended), and distributed general education;
- a minimum of 20 s.h. in three science areas, including a complete introductory course with laboratory in chemistry, physics, and biology; and
- a minimum of 3 s.h. in mathematics, including at least elementary functions.

Fulfillment of these basic admission requirements does not ensure acceptance into the Nuclear Medicine Technology Program.

A new class begins in early August each year. Application materials must be received by March 1. Personal interviews are scheduled in March and the class is selected by April 15. At present, class size is limited to 10 students. Prospective students are encouraged to consult with the program office to plan an appropriate preprofessional program.

**Courses**

**066:004 Clinical Obstetrics and Gynecology**

- Proficiency in evaluation and management of care; core knowledge, skills, and attitudes needed to provide primary health care to female patients.
- Residents are assigned to the various divisions and clinical services of the department and care for both hospital inpatients and outpatients. Training is provided in normal and abnormal obstetrics, gynecologic surgery, office gynecology, ultrasound, reproductive endocrinology, gynecologic oncology, urogynecology, family planning, and endoscopic procedures.

**OBSTETRICS AND GYNECOLOGY**

**Head:** Jennifer R. Niebyl

**Professors:** Barrie Anderson, Jo Ann Benda (Pathology), Rudolph P. Galask (Microbiology), Susan R. Johnson, Jennifer R. Niebyl, Ingrid E. Nygaard, Elaine Smith (Epidemiology), Craig H. Syrop, Bradley Van Voorhis, Roger A. Williamson, Jerome Yankowitz, Frank J. Zlatnik

**Professors (clinical):** Koen DeGeest, Jane Engeldinger, Sanford M. Markham

**Adjunct clinical professor:** Robert M. Kretzschmar

**Associate professors:** Kevin Ault, Anuja Dokras, Stephen K. Hunter, Anja Rutherford, Noelle C. Bowdler, Marygrace Elson, Ann Laros

**Adjunct clinical associate professors:** Grant Paulsen, Charles W. Schauberger, Rebecca Shave, Gerald Shirk

**Assistant professors:** Catherine Bradley, Baoli Yang

**Assistant professors (clinical):** David P. Bender, William Davis, Gregory Skopek, Jill Vithakar, Kelly Ward

**Associates:** Janet I. Andrews, Kevin Kennedy

**Web site:** http://obgyn.uic.uiowa.edu

**Medical Student Training**

Courses in obstetrics and gynecology are designed to give M.D. students a comprehensive survey of reproductive medicine. This is done through a series of didactic lectures, inpatient and outpatient assignments, ward rounds, teaching seminars, and special elective courses.

The third-year clerkship (066:004 Clinical Obstetrics and Gynecology) gives students the core knowledge, skills, and attitudes needed to provide primary care to female patients. The department offers fourth-year students a variety of electives that provide advanced training in the special areas of obstetrics and gynecology.

In addition to clerkships at University of Iowa Hospitals and Clinics, these electives include a rotation at the Gunderson Clinic in La Crosse, Wisconsin, and other arranged off-campus courses.

**Residency**

The department offers a four-year residency. Upon completion, graduates are eligible for the written and oral examinations leading to certification by the American Board of Obstetrics and Gynecology.

Residents are assigned to the various divisions and clinical services of the department and care for both hospital inpatients and outpatients. Training is provided in normal and abnormal obstetrics, gynecologic surgery, office gynecology, ultrasound, reproductive endocrinology, gynecologic oncology, urogynecology, family planning, and endoscopic procedures.

**Courses**

**066:004 Clinical Obstetrics and Gynecology**

- Experience in evaluation and management of care; core knowledge relating to the reproductive tract; special history taking, physical examination, laboratory and imaging assessment of obstetric and gynecologic patients, application of current concepts to well women's health care and to management of diseases and pathologies; outpatient and inpatient obstetrics and gynecology; family planning, screening and early detection of cancer and other diseases.

**066:006 High Risk Antepartum Obstetrics Subinternship**

- Experience in evaluating new patients in a high-risk obstetric clinic; continuing antepartum care; doing work-up, ordering diagnostic studies, and following course of complicated patients admitted to obstetric ward; assisting in diagnostic, therapeutic procedures such as fetal heart rate testing, amniocentesis, ultrasonography, intrauterine fetal transfusion.

**066:010 Gynecologic Oncology Subinternship**

- Experience on a gynecologic oncology service, including operating room, inpatient and outpatient care; team management approach to gynecologic cancer patient, treatment and follow-up of invasive gynecologic malignancies, etiology and risk factors for gynecologic neoplasms, pre- and postoperative evaluation and treatment of surgical management of gynecologic neoplasms; research project encouraged.
OPHTHALMOLOGY AND VISUAL SCIENCES

Head: Thomas A. Weingeist
Assistant professors: Hillary A. Beaver, Terry A. Braun, Sara L. Butterworth, Brian R. Kirschling, Robert F. Mullins, Todd E. Scheetz, Christine W. Sindt, Naureen A. Syed
Associate: Emily C. Grenlee
Web site: http://webeye.ophth.uiowa.edu

Ophthalmology is a medical and surgical specialty concerned with the diagnosis and treatment of diseases of the eye and its adnexa. The department combines postgraduate training with research and patient care in all aspects of the visual sciences. Subspecialties represented in the department include cataract surgery, cornea and external diseases, contact lens and refractive services, genetics and molecular biology, glaucoma, laser refractive surgery, low vision, neuro-ophthalmology, oculoplastics, ocular echography, ocular pathology, ocular vascular diseases, optometric services, pediatric ophthalmology and adult strabismus, and retinal disorders.

The department offers clinical and research training to medical students contributing to the Doctor of Medicine degree and limited graduate studies leading to a Ph.D. in cell biology, molecular biology, and genetics. A three-year residency program with clinical experience in the ophthalmic subspecialties is offered to physician trainees. Graduates qualify for the written and oral examinations leading to certification by the American Board of Ophthalmology. Postgraduate fellowships of one to two years are available for qualified ophthalmologists in most subspecialty areas.

Facilities

The department maintains research laboratories for cell biology, biochemistry, morphology, tumor diagnosis, pathology, electrophysiology, pupillography, molecular biology, and vascular disease. Clinical facilities in ophthalmology are available at the University of Iowa Hospitals and Clinics in the Pomerantz Family Pavilion and at the Veterans Affairs Medical Centers in Iowa City and in Des Moines. The department also manages an eye clinic at the Broadlawns Medical Center in Des Moines as well as outreach programs in other communities. The department houses the University of Iowa Center for Macular Degeneration.

The department sponsors clinical conferences open to community ophthalmologists in Iowa and surrounding states where physicians can earn continuing medical education credits. The department also sponsors an annual alumni meeting with participation by nationally and internationally recognized ophthalmologists and vision scientists.

Courses

067:100 Elective in Ocular Pathology  4 s.h.
Pathophysiology of eye disease; emphasis on use of Socratic method, small study.

067:101 Elective in External Eye Disease  4 s.h.
Common diseases of eyelid, conjunctiva, cornea.

067:102 Elective in Neuro-Ophthalmology  4 s.h.
Visual, ocular motor dysfunction due to neurologic disease; patient work-up, readings, neuro-ophthalmology manuals.

067:109 Molecular Ophthalmology  4 s.h.
Use of recombinant DNA, tissue culture, protein electrophoresis in study of inherited eye diseases. Prerequisite: consent of instructor.

067:111 Clinical Ophthalmology  2 s.h.
All aspects of clinical ophthalmology; patient rounds, lectures, case presentations; clinical duties with staff, residents, faculty in UIHIC and VAMC ophthalmology clinics.

067:998 Ophthalmology on Campus  4 s.h.

067:999 Ophthalmology off Campus  4 s.h.

ORTHOPAEDICS AND REHABILITATION

Head: Joseph A. Buckwalter
Professors emeriti: Reginald R. Cooper, Ignacio V. Ponsei
Clinical professor: Richard C. Johnston
Associate professors: Phyllis Chang, Ernest Found
Assistant professors: Joseph Chen, Nicole Guedjod, Todd McKinley, Sergio Mendoza, Jose Morcuende, Michael O’Rourke, Brian Wolf
Clinical assistant professors: Donald W. Blair, Mark Mynsky
Web site: http://www.medicine.uiowa.edu/orthosurg

The department offers two types of postgraduate training. The first is a five-year integrated clinical program, in which interns and residents participate simultaneously in inpatient and outpatient care, surgery, and sciences related to the neuromusculoskeletal system. The second is a six-year program for those interested in full-time academic orthopaedic careers.

Clinical Program

Trainees enter this program directly from medical school through the National Internship Matching Plan.

During the first year, trainees gain experience not only in clinical orthopaedics but also in medicine, pediatrics, neurology, surgical specialties, intensive care, anesthesiology, and other services.

During the following years, residents gain experience in trauma, musculoskeletal oncology, children’s orthopaedics, adult orthopaedics, neuromuscular disorders, rehabilitation, prosthetics and orthotics, rheumatology, and basic science related to orthopaedics. They take specialized courses in anatomy, bone histology, biochemistry, physiology, and pathology. A weekly seminar covers biomechanics, kinesiology, and selected clinical subjects.

Academic Programs

In addition to the training described for the clinical program, this program includes an additional one or two years of research in a field that interests the resident and is related to the musculoskeletal system. The research may be done in one of the orthopaedic laboratories or in a basic science department.

At the undergraduate level, the Department of Orthopaedics and Rehabilitation participates in the Bachelor of Science in athletic training, which is offered by the Department of Exercise Science in the College of Liberal Arts and Sciences. Members of the orthopaedics and rehabilitation sports medicine faculty teach 076:187 Practicum in Athletic Training, a two-semester advanced clinical sequence (8 s.h.). Students who complete the program are eligible to apply for national certification in athletic training and pursue employment opportunities as health care professionals for sports medicine clinics and hospitals, as well as in academic settings.

Laboratories

The orthopaedics laboratories deal with problems in these major subject areas.

Biochemistry: the biochemistry of proteoglycans, collagens, and matrix proteins, both normal and altered in musculoskeletal disorders

Biomechanics: problems of the upper extremity; biomechanics of the spine, hip, and gait; total joint replacements (in conjunction with the College of Engineering)

Cell and molecular biology: studies of normal bone, cartilage, tendon, muscle, and tissues altered by experiment and disease

Facilities

The department is housed in the John Pappajohn Pavilion of University of Iowa Hospitals and Clinics and has an active service in the Veterans Affairs Medical Center.

Facilities include 48 orthopaedic beds, five outpatient clinics, inpatient and outpatient
The department's main objective is to provide a high-level, comprehensive instructional program in otolaryngology—head and neck surgery for medical students and residents. To maintain a teaching program, the department’s faculty and staff carry a large patient load in head and neck oncology, head and neck plastic reconstructive surgery, facial trauma, craniofacial congenital defects (such as cleft lip and palate), otology/neurotology and skull base tumors, pediatric and geriatric hearing problems, voice problems, peroral endoscopy, surgery for deafness (including cochlear implant), general pediatric otolaryngology, and all the areas usually considered otolaryngologic.

The department has eight divisions: otology/neurotology and skull base surgery, plastic and reconstructive surgery of the head and neck, oncologic surgery of the head and neck, rhinology, pediatric otolaryngology, craniofacial defects, speech pathology and audiology, and research.

The department fosters research programs designed to yield new knowledge in the field and provide models for student and resident research training. There are several large-scale research programs in cleft palate and other craniofacial defects, head and neck oncology, cochlear implants, nasopharyngology, facial nerve conduction, microvascular reconstructive surgery, anatomy of the temporal bone, neuroelectric audiometry, molecular biology of the auditory system, electrophysiology of the auditory system, psychoacoustics, and molecular genetics.

Many of these research programs receive federal and private financial support.

Residency Program

The residency program in otolaryngology is in accord with the requirements of the American Board of Otolaryngology and Accreditation Council for Graduate Medical Education’s Residency Review Committee on Otolaryngology—Head and Neck Surgery. It consists of a four-year course of basic and clinical science. The basic science lectures and laboratory studies are conducted during the first three-and-a-half months of residence. After passing an oral and/or written examination, students enter the clinical phase of the course, which includes supervised clinical and operative work, clinical conferences, and seminars pertinent to the practice of otolaryngology and its related fields.

An alternative research and clinical track is also available. Following one year of general surgery, residents may elect to enter a two-year research training fellowship followed by a four-year clinical residency. The research training fellowship is funded by a National Institutes of Health National Research Service Award.
Clinical Education
See “Clinical Laboratory Sciences” and “Division of Associated Medical Sciences” in the Catalog.

Master of Science
The Master of Science program in pathology is focused on training graduate students in cell and molecular biology. Students in the program take a core curriculum in cell and molecular biology as well as electives suited to their individual interests. They acquire contemporary research skills by pursuing a laboratory thesis project under the guidance of a faculty member. Currently, there are active research programs in immunology, microbiology, proteomics, neuroscience, signaling and apoptosis, vascular biology, and virology. Most M.S. candidates complete their course of study in three years.

Graduates of the program work as research scientists in a range of academic and commercial laboratories, including those in the rapidly expanding biotechnology sector. Others advance to doctoral-level study.

The department encourages applicants with Bachelor of Science degrees in biology, chemistry, biochemistry, clinical laboratory science, microbiology, and zoology. Successful applicants to the program typically have an undergraduate g.p.a. of at least 3.00 and a minimum composite score of 1100 on the verbal and quantitative portions of the Graduate Record Exam (GRE) General test.

Residency
The department is approved for 20 residency positions in pathology, covering a training span of up to four years. The patient populations of University of Iowa Hospitals and Clinics and the Veterans Affairs Medical Center are integral to the program.

Residents gain experience in systematic rotation through the various laboratory services, including surgical pathology, autopsy pathology, neuropathology, cytology, clinical chemistry, clinical microbiology, hematology, immunopathology, and transfusion medicine. They also have the opportunity to pursue one to three years of additional fellowship training in most pathology subspecialties.

Medical Student Fellowships
The department provides seven 12-month fellowships for medical students in any of the areas of anatomical and clinical pathology. One of the fellowships is a full-time research position in some facet of experimental pathology; the other six are primarily in anatomic pathology.

Postgraduate and Postdoctoral Training
The Department of Pathology offers postgraduate clinical fellowship programs in hematopathology, transfusion medicine, clinical microbiology, cytopathology, and surgical pathology for physicians who have completed residency training in pathology. These fellowships consist of one to two years of diagnostic work and up to two years of laboratory research. The department provides postdoctoral research training in immunology, neuropathology, apoptosis, cancer biology, and clinical microbiology as well as in other areas of cellular and molecular pathology. These positions are open to individuals with either Ph.D. or M.D. degrees.

Facilities
The Department of Pathology is well-equipped to carry out the sophisticated technology of modern cellular and molecular pathology. It administers over 90,000 square feet of clinical laboratories at University of Iowa Hospitals and Clinics and has individual research and core facility laboratories, including histopathology and laser capture microscopy for cellular and molecular pathology research, in the Medical Research Center, Medical Laboratories, and at the Veterans Affairs Medical Center. Also available are Carver College of Medicine Core Laboratories for nucleic acid microscopy for cellular and molecular pathology. It administers.

Courses
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>069:090</td>
<td>Laboratory Tests and Disease</td>
<td>2 s.h.</td>
<td>Introduction to the role of clinical laboratory testing in diagnosis and management of human diseases; case-based approach to appropriateness, patient's condition, interpretation of test results.</td>
</tr>
<tr>
<td>069:110</td>
<td>CLS Concepts in Immunohematology</td>
<td>0-1 s.h.</td>
<td>Basic concepts and techniques in blood banking, including ASO and Rh blood group systems and testing, antiglobulin testing. Offered summer sessions. Prerequisite: clinical laboratory sciences or medical technology student standing, 072:150, and 099:110.</td>
</tr>
<tr>
<td>069:111</td>
<td>CLS Concepts in Hematology</td>
<td>0, 2 s.h.</td>
<td>Red and white blood cell function, metabolism, identification, and basic hematology laboratory methods and techniques. Offered summer sessions. Prerequisites: clinical laboratory sciences or medical technology student standing, 072:150, and 099:110.</td>
</tr>
<tr>
<td>069:112</td>
<td>CLS Concepts in Instrumentation, Urinalysis, and Immunology</td>
<td>0, 4 s.h.</td>
<td>Theory and practice of instrumentation, urinalysis, and immunology as applied in clinical laboratories. Offered summer sessions. Prerequisites: clinical laboratory sciences or medical technology student standing, 002:011, 002:011, and 004:121.</td>
</tr>
<tr>
<td>069:113</td>
<td>CLS Concepts in Microbiology</td>
<td>0, 2 s.h.</td>
<td>Principles of microbiology as applied to diagnosis and management of infectious disease. Offered summer sessions. Prerequisites: clinical laboratory sciences or medical technology student standing, and 061:157.</td>
</tr>
<tr>
<td>069:118</td>
<td>Phlebotomy for Clinical Laboratory Science</td>
<td>0-1 s.h.</td>
<td>Experience in phlebotomy techniques. Prerequisites: clinical laboratory sciences or medical technology student standing and consent of instructor.</td>
</tr>
<tr>
<td>069:121</td>
<td>Introduction to Clinical Practice</td>
<td>0-1 s.h.</td>
<td>Limited rotation through a clinical laboratory. Corequisites: 069:122 and 069:124.</td>
</tr>
<tr>
<td>069:122</td>
<td>Chemistry for Clinical Laboratory Science</td>
<td>0, 4 s.h.</td>
<td>Theory, practice of analytical biochemistry applied to disease states; methodology, automation, reagent preparation. Prerequisite: 069:136.</td>
</tr>
<tr>
<td>069:123</td>
<td>Immunohematology for Clinical Laboratory Science</td>
<td>0, 3 s.h.</td>
<td>Theory, practice of laboratory hematology as applied to pathologic states; methodology, automation. Prerequisite: 069:136.</td>
</tr>
<tr>
<td>069:124</td>
<td>Hematology for Clinical Laboratory Science</td>
<td>0, 4 s.h.</td>
<td>Theory, practice of laboratory hematology applied to pathologic states; methodology, automation. Prerequisite: 069:136.</td>
</tr>
<tr>
<td>069:125</td>
<td>Microbiology for Clinical Laboratory Science</td>
<td>0, 4 s.h.</td>
<td>Theory, practice of laboratory microbiology applied to pathogenic microorganisms, including bacteria, parasites, fungi, viruses. Prerequisite: 069:136.</td>
</tr>
<tr>
<td>069:126</td>
<td>Clinical Chemistry</td>
<td>0, 4 s.h.</td>
<td>Rotation through clinical chemistry laboratories. Prerequisites: 069:121 and 069:122.</td>
</tr>
<tr>
<td>069:127</td>
<td>Clinical Hematology and Immunohematology</td>
<td>0, 4 s.h.</td>
<td>Rotation through hematology and immunohematology laboratories. Prerequisites: 069:121, 069:123, and 069:124.</td>
</tr>
<tr>
<td>069:128</td>
<td>Clinical Microbiology, Parasitology</td>
<td>0, 4 s.h.</td>
<td>Rotation through clinical microbiology and parasitology laboratories. Prerequisite: 069:125.</td>
</tr>
<tr>
<td>069:129</td>
<td>Clinical Immunology, Molecular Pathology, and Body Fluids</td>
<td>0, 3 s.h.</td>
<td>Rotation through immunology laboratories. Prerequisites: 069:122 and 069:124.</td>
</tr>
<tr>
<td>069:130</td>
<td>Clinical Laboratory Medicine for Physician Assistants</td>
<td>0-1 s.h.</td>
<td>Theory and practice of selected clinical laboratory techniques, procedures; emphasis on effective use of clinical laboratory in the diagnosis, management of disease. Prerequisite: physician assistant student standing.</td>
</tr>
<tr>
<td>069:131</td>
<td>CLS Professional Skills Seminar</td>
<td>0-2 s.h.</td>
<td>Prerequisite: senior standing in clinical laboratory sciences.</td>
</tr>
<tr>
<td>069:132</td>
<td>CLS Management Topics and Projects</td>
<td>0-2 s.h.</td>
<td>Theory and practice of clinical laboratory management. Prerequisite: senior standing in clinical laboratory sciences.</td>
</tr>
<tr>
<td>069:133</td>
<td>Introduction to Human Pathology</td>
<td>arr.</td>
<td>Human disease; basic disease processes, organ-related and multisystem diseases; case analysis. Offered fall semesters.</td>
</tr>
<tr>
<td>069:134</td>
<td>Clinical Research for Clinical Laboratory Science</td>
<td>arr.</td>
<td>Prerequisite: clinical laboratory sciences student standing.</td>
</tr>
<tr>
<td>069:135</td>
<td>Individual Study in Clinical Laboratory Science</td>
<td>arr.</td>
<td>Management, education, or research theory and practice. Prerequisite: clinical laboratory sciences student standing.</td>
</tr>
<tr>
<td>069:136</td>
<td>Introduction to Clinical Laboratory Science</td>
<td>0-1 s.h.</td>
<td>Prerequisite: admission to Clinical Laboratory Sciences Program.</td>
</tr>
<tr>
<td>069:140</td>
<td>Immunohematology Concepts for CLS</td>
<td>3 s.h.</td>
<td>Immunohematology techniques and concepts for the clinical laboratory. Prerequisites: clinical laboratory sciences or medical technology student standing, 004:122 or 099:110, 027:130, 061:157, and 069:136.</td>
</tr>
<tr>
<td>069:141</td>
<td>Hematology Laboratory Concepts for CLS</td>
<td>3 s.h.</td>
<td>Hematology concepts and techniques for the clinical laboratory. Prerequisites: clinical laboratory sciences or medical technology student standing, 004:122 or 099:110, 027:130, 061:157, and 069:136.</td>
</tr>
<tr>
<td>069:142</td>
<td>Microbiology Concepts for CLS</td>
<td>2 s.h.</td>
<td>Microbiology techniques and concepts for the clinical laboratory. Prerequisites: clinical laboratory sciences or medical technology student standing, 004:122 or 099:110, 027:130, 061:157, and 069:136.</td>
</tr>
<tr>
<td>069:204</td>
<td>General and Systematic Pathology</td>
<td>9 s.h.</td>
<td>Mechanisms of disease; etiology, pathogenesis, epidemiology, and major clinical morphologic manifestations of disease by organ systems. Prerequisite: second-year medical student standing, or graduate standing and consent of instructor.</td>
</tr>
</tbody>
</table>
069:211 Research in Pathology
Basic aspects of pathologic or clinical patient material; emphasis on experimental design, methods, literature review, obtaining formal answers to specific questions. Prerequisite: medical student standing, or graduate standing and consent of instructor.

069:231 Special Topics in Pathology
Prerequisite: medical student standing, or graduate standing and consent of instructor.

069:240 Topics in Laboratory Medicine and Pathology
Issues in appropriate use of clinical laboratory and pathology resources in the primary care setting; case-based approach. Prerequisite: third- or fourth-year medical student standing.

069:241 Autopsy Pathology Clerkship

069:245 Hematopathology Clerkship

069:246 Surgical Pathology Clerkship

069:247 Blood Bank Clerkship

069:249 Clinical Immunology and Immunopathology:
Laboratory and Clinical Correlations 4 s.h.
Experience in immunopathology lab, allergy-immunology clinics, conferences, follow-up of lab requests, abnormalities. Prerequisite: third- or fourth-year medical student standing. Same as 078:253.

069:270 Pathogenesis of Major Human Diseases
3 s.h.
Critical analysis of modern models in a series of major human diseases; clinical presentation, analysis of cellular and molecular events leading to the disease, discussion of key papers. Prerequisite: 156:201.

069:288 Molecular and Cellular Biology of Cancer
3 s.h.
Biological features, population characteristics; cell biology, molecular mechanisms; chemical, viral carcinogenesis; immunology of neoplasia, with emphasis on in-depth analysis, supporting literature. Prerequisites: strong basic science background and consent of instructor. Same as 077:288.

069:290 Medical Student Fellowships in Pathology (Externships)
0 s.h.
First-hand experience in autopsy, surgical and clinical pathology, teaching, and research to further understanding of disease mechanisms, normal and pathological anatomy, laboratory use.

069:291 Warner Fellowship in Experimental Pathology
0 s.h.
One-year full-time membership in established research laboratory in the Department of Pathology or collaborating laboratory. Prerequisite: medical student standing.

069:988 Pathology on Campus

069:999 Pathology off Campus

Outpatient experience, available in the junior clerkship and senior electives, stresses principles and practices required for the maintenance of children's health, treatment of general common pediatric disorders, and the diagnosis and treatment of subspecialty ambulatory patients.

Residency, Fellowships
The department offers an accredited three-year residency program designed to prepare each trainee for a professional career in the field of general pediatrics or for further fellowship training. The program meets the eligibility requirements of the American Board of Pediatrics (ABP).

Fellowships are available in many subspecialties of pediatrics. The programs have research and clinical orientations; they encourage development of knowledge and skill in the chosen discipline. Upon satisfactory completion of the program, fellows meet the eligibility requirements of the ABSP in the subspecialty.

Facilities
The Department of Pediatrics is located in the Children's Hospital of Iowa at University of Iowa Hospitals and Clinics, and in inpatient and outpatient areas immediately adjacent to faculty offices and the pediatric library.

The inpatient service has approximately 120 beds, and more than 50,000 patients are seen each year in the general, specialty, continuity care, and field clinics, and in the Emergency Treatment Center. The Center for Disabilities and Development is available for children with developmental disabilities, cerebral palsy, or mental retardation.

The department maintains laboratories that perform both clinical and research studies.

Courses
070:002 Clinical Pediatrics
6 s.h.
Principles, practices of health maintenance and treatment of acute and chronic illnesses in children; emphasis on diagnosis and evaluation, nutrition, behavior problems, disorders affecting children, patient care, daily rounds, ward work. Prerequisite: third-year medical student standing.

070:013 Subinternship in Pediatrics: Blank Children's Hospital, Des Moines
Art.
Experience in the care of general pediatric inpatients; daily rounds and teaching by senior residents and faculty members; daily didactic conferences. Prerequisite: senior medical student standing.

070:014 Emergency Room Blank Children's Hospital, Des Moines
Art.
Pediatric emergencies and urgent care, proficiency in pediatric medicine procedures; expansion of basic knowledge. Prerequisite: senior medical student standing.

070:016 Pediatric Hematology/Oncology
Art.
Basic concepts of clinical approach to hematologic and oncologic problems in children and adolescents; primarily outpatient experience. Prerequisite: senior medical student standing.

070:017 Pediatric Neurology
Art.
Participation in outpatient and inpatient activities, teaching, morning ward rounds. Prerequisite: senior medical student standing.

070:019 Pediatric Cardiology
Art.
Participation in clinical activities, knowledge of cardiovascular anatomy and physiology, experience in diagnostic workup, approach to congestive heart failure, evaluation and treatment of congenital heart disease. Prerequisite: senior medical student standing.

Pediatrics • Carver College of Medicine 431

PEDIATRICS

Interim head: Eva Tsai


Assistant professors: Linda Cooper-Brown, Jodi Ringdahl


Fellow associate: Tracy Shaw


The Department of Pediatrics has designed its educational program to provide a solid foundation for students and those seeking postgraduate training. Extensive opportunities for general pediatrics and the subspecialties are available.

Affiliated programs add depth to the educational program in community pediatrics and primary care. The Divisions of Maternal and Child Health—Iowa State Department of Health, Regional Child Health Specialty Clinics, Center for Disabilities and Development, Blank Children’s Hospital (Des Moines), and community site sponsors programs affiliated with the department.

Medical Student Training
Didactic lectures and physical examination of the newborn, toddler, and older child provide students with their initial pediatric patient contact. This experience includes taking a history, performing a physical examination, appraisal of growth and development, nutrition, and symptomatology of the newborn, toddler, and adolescent.

For the junior and senior medical student, the inpatient service provides an opportunity for training in the complex problems of disease and critical illness. There are daily rounds involving general pediatrics and all subspecialties. Challenging and interesting cases are presented for discussion of diagnosis and treatment.
070:023 Infant and Child Development 4 s.h.
Normal developmental sequence of growth and early childhood, impact of environmental influences, antecedents of developmental disabilities; methods to detect cognitive and motor delays in preschool children; long-term consequences of developmental disabilities for children, their families; advantages of interdisciplinary teamwork. Prerequisite: senior medical student standing.

070:027 Neonatal Intensive Care Unit 4 s.h.
Experience caring for ill neonates, proficiency in using diagnostic tests and procedures, responsibility for care of several infants; reference and literature review, conferences, teaching, clinical rounds. Prerequisite: senior medical student standing.

070:028 Pediatric Inpatient Care Subinternship 4 s.h.
Experience on pediatric inpatient team caring for patients ranging from infants through adolescents; evaluation, formulation of differential diagnoses, diagnostic workups, appropriate therapy programs. Prerequisite: senior medical student standing.

070:029 Pediatric Intensive Care Unit 4 s.h.
Direct care of critically ill children in a multidisciplinary medical/surgical/cardiac intensive care unit, under supervision of pediatric residents and staff; participation in educational activities and formal clinical rounds. Prerequisite: senior medical student standing.

070:030 Medical Genetics for the Senior Student 4 s.h.
Participation in diagnostic, therapeutic problems; techniques for evaluation, appropriate counseling in genetic cases; conferences. Prerequisite: senior medical student standing.

070:033 Pediatric Gastroenterology 4 s.h.
Diversion, management, treatment of disease of gastrointestinal tract, liver, pancreas in children; ward rounds, consultations, clinical, diagnostic procedures, conferences. Prerequisite: senior medical student standing.

070:040 Infectious Disease Consults 4 s.h.
Prerequisite: senior medical student standing.

070:043 Pediatric Allergy 4 s.h.
Experience in evaluating and treating respiratory and allergic diseases in infants, children, and adolescents. Prerequisite: senior medical student standing.

070:055 General Pediatric Outpatient Clinic 4 s.h.
Work in general pediatric outpatient clinic with acutely or chronically ill patients and with well children. Prerequisite: senior medical student standing.

070:0110 Medical Genetics 2 s.h.
Gene structure and function, basic genetics concepts; application to problems in human disease; participation in educational activities and formal clinical rounds. Prerequisite: medical student standing or graduate standing in related health field, and consent of instructor.

070:201 Primary Care: Infants, Children, and Adolescents I 3 s.h.
Enhancement of clinical knowledge and skills for infant, child, adolescent care; development and refinement of knowledge and skills in primary health care delivery. Prerequisites: 090:219 and 090:280. Same as 090:220.

070:245 Evaluation of Children with Learning Disabilities 4 s.h.
Work in pediatric psychology learning disability clinic; training, experience in assessment, interview, research. Prerequisite: consent of instructor. Same as 079:207.

070:247 Neuropsychology of Learning Seminar 4 s.h.
Research and theory on varied approaches to learning disability; language disability, visual/perceptual disability, sensory and memory deficits. Prerequisites: 070:245 or 070:251, course on psychological testing including I.Q., and consent of instructor.

070:250 Social Psychology of Disability 3 s.h.
Research seminar; mental/physical disability from individual and societal perspectives; emphasis on clarifying research and theoretical strategies in psychology of disability. Prerequisite: doctoral standing and consent of instructor. Same as 079:210.

070:251 Clinical Pediatric Neuropsychology 3 s.h.
Assessment and behavioral disorders resulting from central nervous system dysfunction; clinical experience in assessment of cognitive, behavioral patterns. Prerequisite: consent of instructor.

070:252 Assessment of Attention Deficit Disorder 3 s.h.
Participation in clinical, research, didactic work in evaluating children with attention deficit disorder. Prerequisite: experience in intellectual assessment of children.

070:253 Assessment of Behavior Disorders 3 s.h.
Experience in diagnostic and behavioral assessments of children with conduct disorders.

070:300 Pediatric Independent Study 4 s.h.
Arranged by student and department. Prerequisite: senior medical student standing.

070:333 Pediatric Intensive Care off Campus 4 s.h.
Arranged by student and department. Prerequisite: senior medical student standing.

070:653 Adult and Pediatric Nephrology and Hypertension 4 s.h.
Prerequisite: senior medical student standing. Same as 078:653.

070:652 Medical and Pediatric Endocrinology 4 s.h.
Prerequisite: senior medical student standing. Same as 078:662.

070:998 Pediatrics on Campus 4 s.h.
Prerequisite: senior medical student standing.

070:999 Pediatrics off Campus 4 s.h.
Prerequisite: senior medical student standing.

PHARMACOLOGY

Head: G.E. Gehbhart
Professors emeriti: Jeffrey Baron, Razedor Bhattacharya, Gary R. Dutton, J. Paul Long, James Spratt, Thomas Tephy, Harold Williamson

Assistant professors: Timothy Brennan, Rory Fisher, Minsetta Cardinale, Johannes Heil, Barry Kasson, John Koland, Ulla Kopp, Kathryn G. Lamping
Assistant professors: Mary Horne, Nancy Lill, Dawn E. Ouelle, Frederick W. Ouelle, David Shaff, Stefan Strack, Yuhey Usachev
Graduate degrees: M.S., Ph.D. in Pharmacology
Web site: http://www.medicne.uiowa.edu/pharmacology

The Department of Pharmacology offers graduate study programs leading to the M.S. and Ph.D. degrees. These programs include both didactic and research experience. Also available are opportunities for qualified students to pursue an M.S. degree in clinical pharmacology or a combined M.D./Ph.D. degree (Medical Scientist Training Program).

The department provides professional training in pharmacology for health science students and participates with other departments in educational and research activities such as the Dental Scientist Training Program, the Medical Scientist Training Program, the Physician Scientist Training Program, the Molecular Biology Program, the Neuroscience Program, the Cancer Center, and the Cardiovascular Research Center.

The pharmacology department was a pioneer in offering pharmacology to undergraduate students with little or no science background. The lecture and discussion sessions in 071:120 Drugs: Their Nature, Action, and Use emphasize the mechanisms of drug action and give students a background for rational decisions concerning use of drugs. Students interested in pursuing a career in science may attend an eight-week summer research program that provides opportunities for selected undergraduates to conduct research in faculty laboratories. Pre- and postdoctoral students can pursue research training in all areas of pharmacology in the department in preparation for career opportunities in academia, government, and industry.

Master of Science

Core course requirements for the M.S. degree in pharmacology are as follows.

071:135 Principles of Pharmacology 4 s.h.
071:203 Pharmacology Research 4 s.h.
071:204 Pharmacology Seminar 1 s.h.
071:206 Receptors and Signal Transduction 3 s.h.
071:302 Pharmacology for Graduate Students 6 s.h.
072:123 Graduate Physiology 4 s.h.
156:201 Principles in Molecular and Cell Biology 4 s.h.

Students also are expected to gain maximum experience in laboratory research while completing their course work. Satisfactory preparation and oral defense of a thesis based on the student’s own research are required for completion of the program.

Doctor of Philosophy

Core course requirements for the Ph.D. in pharmacology are as follows.

071:135 Principles of Pharmacology 4 s.h.
071:203 Pharmacology Research 4 s.h.
071:204 Pharmacology Seminar 1 s.h.
071:206 Receptors and Signal Transduction 3 s.h.
071:302 Pharmacology for Graduate Students 6 s.h.
072:123 Graduate Physiology 4 s.h.
156:201 Principles in Molecular and Cell Biology 4 s.h.

Individual faculty research advisers may require additional courses.

During the first semester in the program, students are required to work in two different faculty laboratories before selecting a laboratory in which to pursue thesis research. Students then are expected to obtain maximum laboratory research experience while completing course work. The Ph.D. comprehensive examination (written and oral) is given at the end of the fourth semester. Satisfactory preparation and oral defense of the thesis complete the program.

There is no departmental foreign language requirement.

Admission

Admission to the graduate programs is determined by the faculty after receipt of a completed formal application and interview (if applicable) by faculty members or other designated individuals. Admission to the M.S. and Ph.D. programs typically requires a g.p.a. of at least 3.00; a combined score of 1200 or higher on the verbal and quantitative sections of the Graduate Record Examination (GRE) General Test; and completion of undergraduate courses in chemistry, biology, biochemistry, and mathematics. However, each application is reviewed individually, and if the applicant possesses outstanding credentials in other areas, some of the standard admission criteria may be set aside.
Financial Support

The department provides all Ph.D. students and some M.S. students with financial support in the form of stipends and tuition support. Support is renewed annually based on satisfactory progress toward meeting degree requirements.

Courses

071:100 Molecular Basis of Disease 3 s.h.

071:105 Pharmacology for Health Sciences: Medical 5 s.h.
- Principles of pharmacology, pharmacologic actions of drugs, correlation with therapeutic uses. Offered fall semesters. Prerequisites: 050:240 and 099:163, or equivalents; and medical student standing.

071:111 Pharmacology for Dental Students 5 s.h.
- Principles of pharmacology, pharmacologic actions of drugs, correlation with therapeutic uses. Offered spring semesters. Prerequisites: 071:152 and 099:161, or consent of instructor, and dental student standing.

071:120 Drugs: Their Nature, Action, and Use 2 s.h.
- Principles of drug action, toxicity, sedatives, stimulants, hallucinogens, narcotics, over-the-counter agents, antibiotics, oral contraceptives. Offered spring semesters.

071:125 Pharmacology for Health Sciences: Physician Assistant Students 6 s.h.
- Principles of pharmacology, pharmacologic actions of drugs, correlation with therapeutic uses. Offered fall semesters. Prerequisites: 072:164 and 099:164, or consent of instructor, and enrollment in physician assistant program.

071:130 Drug Mechanisms and Actions 3 s.h.
- Introduction to principles of pharmacology, pharmacologic actions of drugs. Offered spring semesters. Prerequisites: undergraduate biochemistry and physiology, or consent of instructor; and science background.

071:135 Principles of Pharmacology 4 s.h.
- Principles of drug action, disposition, statistical analysis. Offered spring semesters. Prerequisite: consent of instructor.

071:180 Pharmacology for Pharmacy Students I 3 s.h.
- Principles of pharmacology, toxicology, drug and toxic mechanisms, systemic and organ-specific pharmacologic and toxic responses. Offered spring semesters. Prerequisite: first-year pharmacy standing, or graduate standing and consent of instructor.

071:181 Pharmacology for Pharmacy Students II 4 s.h.
- Continuation of 071:180. Offered fall semesters. Prerequisite: second-year pharmacy standing, or graduate standing and consent of instructor.

071:182 Neuronal Transmitters and Ion Channels 3 s.h.
- Biochemistry, cell biology, physiology, and pharmacology of ionotropic and metabotropic neurotransmitter receptors and ion channels, neuronal excitability, and synaptic transmission. Offered spring semesters. Prerequisite: consent of instructor.

071:203 Pharmacology Research arr.
Prerequisite: consent of department head.

071:204 Pharmacology Seminar 1 s.h.
Prerequisite: consent of department head.

071:207 Neuroupharmacology 3 s.h.

071:209 Receptors and Signal Transduction 3 s.h.
- Major receptor families: G-protein coupled receptors, ligand-regulated transmembrane enzymes, ligand-regulated ion channels, the steroid receptor superfamily; emphasis on description, interpretation of specific experiments, experimental strategies underlying current research. Offered spring semesters. Prerequisites: 072:153 and 156:201, or equivalents. Same as 072:209, 132:209.

071:210 Special Topics in Pharmacology arr.
Prerequisite: consent of department head.

071:215 Topics in Neuropharmacology 1 s.h.
- Recent advances in neuropharmacology, developmental neurobiology, neuromodulation, related neurosciences. Prerequisite: consent of instructor.

071:225 Topics in Molecular Pharmacology 1 s.h.
- Recent advances in molecular pharmacology, receptor, postreceptor events in stimulus coupling. Prerequisite: consent of instructor.

071:230 Behavioral Pharmacology 3 s.h.
- Behavioral analysis of drug action; emphasis on physiological and biomedical mechanisms underlying behavioral processes in experimental animals, humans. Offered spring semesters of even years. Same as 031:230.

071:235 Topics in Pain and Analgesia 1 s.h.
- Recent advances in pain research, therapy. Prerequisite: consent of instructor.

- Anatomical, physiological, and pharmacological mechanisms that underlie central neuronal processing of pain; emphasis on neuronal changes during pathological conditions such as inflammation/arthritis, peripheral neuropathy. Offered fall semesters. Same as 101:277.

071:302 Pharmacology for Graduate Students 6 s.h.
- Principles of pharmacology, pharmacologic actions of drugs, correlation with therapeutic uses. Offered fall semesters. Prerequisites: 072:153 and 156:201, or equivalents; and consent of instructor.

Graduate Programs

Doctor of Physical Therapy

The Doctor of Physical Therapy (D.P.T.) professional program is fully accredited by the Commission on Accreditation in Physical Therapy Education. Satisfactory completion of the professional program qualifies candidates for the state-administered National Physical Therapy Examination for licensure to practice.

Technical Standards for Graduation

Doctor of Physical Therapy graduates must possess and demonstrate the physical and cognitive skills and emotional qualities required to provide physical therapy services in a broad variety of clinical situations and environments. All D.P.T. candidates must perform, with or without reasonable accommodation, the following skills safely, effectively, efficiently, and in compliance with the legal and ethical standards set by the American Physical Therapy Association Code of Ethics and Standards of Practice.

- Communicate effectively through appropriate verbal, nonverbal, and written communication with patients, families, and others;
- Demonstrate ability to apply universal precautions;
- Use appropriate tests and measures in order to perform a physical therapy examination;
- Demonstrate the ability to reach diagnostic and therapeutic judgments through analysis and synthesis of data gathered during patient/client examination in order to develop an appropriate plan of care;
• perform fully, or in a reasonably independent manner, physical therapy interventions appropriate to the patient's status and desired goals;
• apply teaching/learning theories and methods in health care and community environments;
• accept criticism and respond by appropriate behavior modification;
• possess the perseverance, diligence, and consistency to complete the physical therapy curriculum and enter the practice of physical therapy.

Applicants with health conditions or disabilities who need accommodation to meet the technical standards for graduation should contact the University's Office of Student Disability Services.

Curriculum

The D.P.T. program is completed in two and a half years. It consists of the following courses.

**Summer Session**

101:140 Introduction to Physical Therapy Practice 2 s.h.
101:141 Principles of Physical Therapy I 2 s.h.
101:205 Health Promotion and Wellness 3 s.h.

**First Semester**

060:108 Human Anatomy 5 s.h.
060:133 Introduction to Human Pathology 4 s.h.
101:120 Professional Issues and Ethics 1 s.h.
101:142 Principles of Physical Therapy II 2 s.h.
101:189 Clinical Education I 1 s.h.
101:209 Surface Anatomy 1 s.h.
101:210 Kinesiology and Pathomechanics 4 s.h.
101:235 Case-Based Learning I 1 s.h.

**Second Semester**

060:234 Medical Neuroscience 4 s.h.
101:131 Therapeutic Physical Agents 2 s.h.
101:185 Musculoskeletal Therapeutics I 3 s.h.
101:190 Clinical Education II 1 s.h.
101:201 Applied Clinical Medicine 2 s.h.
101:206 Cardiopulmonary Therapeutics 3 s.h.
101:236 Case-Based Learning II 1 s.h.
*Elective (optional) 1 s.h.

**Summer Session**

101:119 Physical Therapy Management and Administration I 2 s.h.
101:143 Selected Topics in Physical Therapy Practice 2 s.h.
101:176 Pharmacology for Physical Therapists 3 s.h.
101:194 Clinical Internship 3 s.h.

**Third Semester**

101:122 Psychosocial Aspects of Patient Care 1 s.h.
101:133 Pain Mechanisms and Treatment 2 s.h.
101:134 Physical Therapy Management of Integumentary System 2 s.h.
101:170 Prosthetics and Orthotics 2 s.h.
101:191 Clinical Education III 1 s.h.
101:202 Musculoskeletal Therapeutics II 3 s.h.
101:224 Principles of Motor Control and Applied Neuroscience 4 s.h.
101:237 Case-Based Learning III 1 s.h.
101:248 Research in Physical Therapy 2 s.h.
*Elective (optional) 1 s.h.

**Fourth Semester**

101:121 Physical Therapy Management and Administration II 1 s.h.
101:151 Progressive Functional Exercise 2 s.h.
101:172 Radiology/Imaging for Physical Therapists 3 s.h.
101:173 Differential Diagnosis in Physical Therapy 2 s.h.
101:192 Clinical Education IV 1 s.h.
101:200 Pediatric Physical Therapy 1 s.h.
101:203 Musculoskeletal Therapeutics III 4 s.h.
101:225 Neuromuscular Therapeutics 3 s.h.
101:238 Case-Based Learning IV 1 s.h.
101:251 Critical Inquiry in Physical Therapy I 2 s.h.
*Elective (optional) 1 s.h.

*The curriculum allows students the option to earn a total of 3 s.h. in electives.

**Summer Session**

101:194 Clinical Internship 7 s.h.

**Fifth Semester**

101:194 Clinical Internship 5 s.h.
101:252 Critical Inquiry in Physical Therapy II 1 s.h.

**Admission**

A new class is admitted to the Doctor of Physical Therapy program each summer. To qualify for admission, applicants must have completed, or plan to complete before enrollment, a baccalaureate degree from a regionally accredited institution in the United States. The applicant's baccalaureate degree program must include the following prerequisite course work.

**Biological sciences:** a complete introductory course in principles of general biology or zoology, and advanced course work in biology or zoology (for which an introductory course is prerequisite) equivalent to 12 s.h.

**Physics:** a complete introductory course equivalent to 8 s.h.

**Chemistry:** a complete introductory course equivalent to 8 s.h.

**Psychology:** courses equivalent to 6 s.h.

**Mathematics:** a college-level mathematics course, at the level of trigonometry or higher, equivalent to 3 s.h.

**Statistics:** a college-level statistics course equivalent to 3 s.h.

All science courses must include the appropriate laboratory instruction. The prerequisite courses must have been taken for a letter grade.

Applicants must have an overall g.p.a. of at least 3.00 in order to be considered for admission. In addition, a g.p.a. of 3.00 or higher in all prerequisite course work, including elective basic science courses, is recommended. Three letters of recommendation are required and should be sent directly to the Physical Therapy and Rehabilitation Science Program office.

Applicants must take the Graduate Record Examination (GRE) General Test. A score of at least 1,000 (verbal and quantitative) is required. Students should arrange to take the test early in order to ensure receipt of the results of the examination by the application deadline (January 1).

Personal interviews are required of candidates selected for consideration by the admissions committee. Because the number of students admitted to each class is limited, not all applicants are invited for interviews. Selections for each class are made from the applicants interviewed. All interviews are conducted at The University of Iowa.

The physical therapy admissions committee selects applicants who appear to be best qualified for the study and practice of the profession. Preference is given to residents of Iowa.

Applications are accepted beginning September 1 for the following year. Prospective students are urged to apply as early as possible. The closing date is January 1.

**Early Admission**

Applicants with a g.p.a. of at least 3.75 and a Graduate Record Exam score of 1100 or higher (verbal and quantitative combined) may be considered for early admission. The early admission application deadline is October 1.

Application materials are the same as those required for regular admission. Applicants are notified by December 1. Applicants interviewed but not selected for early admission are placed in the final general applicant pool.

**Expenses**

Students admitted to the D.P.T. program must make an advance tuition payment of $300, which is forfeited if the student does not enroll. In addition to general University expenses, students are responsible for purchasing uniforms, patient evaluation kits, and course syllabi.

All students are required to comply with the pre-entrance and periodic health screening program developed by the Student Health Service in cooperation with the University of Iowa Hospitals and Clinics. All costs of the screening program are the student's responsibility. Students also are required to have health insurance.

**M.A. in Physical Therapy**

The Master of Arts in physical therapy is designed for individuals who are interested in pursuing a Ph.D. in rehabilitation science and who have not earned a master's degree. It emphasizes research and teaching in three core areas: cardiopulmonary, musculoskeletal, and neuromuscular. The program focuses on developing strong laboratory skills and theoretical knowledge related to the rehabilitation sciences.

The master's degree requires a minimum of 30 s.h. of graduate course work. Completion of
basic professional physical therapy education is a prerequisite. Clinical experience is recommended.

Students have access to the program’s rehabilitation research laboratories, which are equipped with electromechanical systems and computers for measurement and analysis of cardiopulmonary responses (heart rate, blood pressure, energy cost, and ventilation), musculoskeletal function in normal, sport, and occupational activities (muscle strength and function, kinetics, and kinematics), and neuromuscular function (electromyography, spinal reflexes, muscle fatigue, neurophysiology of pain, and CNS control mechanisms). All specialty areas include measures of global outcome related to disability. Use of extradepartmental laboratories also may be arranged.

Collaborative studies are encouraged with other departments, such as neurology, internal medicine, occupational and environmental health, pediatrics, orthopaedics and rehabilitation, physiology and biophysics, anatomy and cell biology, engineering, and pharmacology, and with personnel in the rehabilitation therapies clinics.

Students who successfully complete the M.A. program in physical therapy possess:

• theoretical and scientific knowledge required for performance of research at the basic, applied, or clinical level leading to scientific presentations;
• breadth of knowledge in the cardiopulmonary, musculoskeletal, or neuromuscular specialty areas as they relate to impairment, functional limitation, and disability; and
• practical skills required for teaching at the professional entry level within the academic community.

The curriculum is as follows.

**CORE REQUIREMENTS**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>101:212</td>
<td>Biomedical Instrumentation and Measurement</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>101:220</td>
<td>Seminar in Rehabilitation Science</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>101:280</td>
<td>Teaching Practicum</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>101:301</td>
<td>Thesis: Rehabilitation Science (may be taken pass/fail)</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>171:161</td>
<td>Introduction to Biostatistics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>171:162</td>
<td>Design and Analysis of Biomedical Studies</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**SCIENTIFIC CONTENT CORE AND SPECIALTY FOCUS REQUIREMENTS**

Students take one first-level course from each of the three specialty areas and one second-level course in their identified specialty area (courses outside the department may be substituted when appropriate, with the adviser and course instructor’s approval).

**Cardiopulmonary**

First-level courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>027:141</td>
<td>Exercise Physiology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>101:206</td>
<td>Cardiopulmonary Therapeutics (with lab)</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Second-level courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>027:274</td>
<td>Advanced Exercise Physiology and advanced exercise physiology laboratory (respiratory and cardiovascular)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>101:260</td>
<td>Advanced Health Promotion and Cardiopulmonary Therapeutics</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Musculoskeletal**

First-level courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>027:107</td>
<td>Introduction to Biomechanics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>101:210</td>
<td>Kinesiology and Pathomechanics (with lab)</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

Second-level courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>027:155</td>
<td>Skeletal Muscle Biology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>027:197</td>
<td>Biomechanics of Human Motion</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>058:190</td>
<td>Readings in Mechanical Engineering (Statics)</td>
<td>art.</td>
</tr>
<tr>
<td>101:285</td>
<td>Biomechanical Analysis in Rehabilitation</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>175:190</td>
<td>Occupational Ergonomics I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>175:294</td>
<td>Occupational Ergonomics II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>175:295</td>
<td>Clinical Ergonomics</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Neuromuscular**

First-level courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>027:160</td>
<td>Motor Control I: Neurophysiological Basis</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>101:224</td>
<td>Principles of Motor Control and Applied Neuroscience</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

Second-level courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>027:155</td>
<td>Skeletal Muscle Biology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>027:314</td>
<td>Seminar in Motor Control</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>071:207</td>
<td>Neuropharmacology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>101:275</td>
<td>Analysis of Sensor-Motor Systems in Health and Disease</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>101:277</td>
<td>Mechanisms of Pain Transmission</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>101:295</td>
<td>Applied Electromyography</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>132:180</td>
<td>Fundamental Neuroscience</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

**ELECTIVES**

The requirement varies.

**Admission**

To be considered for admission, applicants must be graduates of an approved professional program of physical therapy and must have earned a g.p.a. of at least 3.00 on all undergraduate work. Clinical experience is not required, but it often helps students establish their research focus.

Admission to the Master of Arts program is based on the grade-point average for previous collegiate academic work; scores on the Graduate Record Examination (GRE) General Test; recommendations from three sources; a statement of purpose; and a personal interview. International applicants whose native language is not English must have a score of at least 250 on the computer-based Test of English as a Foreign Language (TOEFL). Applicants also must meet the requirements established by the Graduate College.

Applicants must complete the Graduate College application.

Deadlines for completed written applications are October 15 (notification by December 15); March 15 (notification by May 15); and May 15 (notification by July 15).

**Ph.D. in Rehabilitation Science**

The Ph.D. program is designed to advance the student’s ability to independently develop and carry out research projects that strive to establish the scientific basis for prevention, evaluation, and treatment of impairments, functional limitations, and disability. The curriculum is flexible enough to accommodate research needs focusing on basic, applied, or clinical studies in the rehabilitation sciences. Students have access to the program’s research laboratories (see “Research Facilities” in this section of the Catalog).

Graduates who complete the program are prepared for academic appointments that emphasize research, scholarship, and teaching. They possess:

• theoretical and scientific knowledge to perform original research at the basic, applied, or clinical level, which leads to scientific presentations, publication in peer-reviewed journals, and competition for extramural funding through scientific grant writing;
• breadth of knowledge in the cardiopulmonary, musculoskeletal, or neuromuscular specialty areas as they relate to impairment, functional limitation, and disability; and
• theoretical and practical skills required for teaching at the professional entry and advanced graduate levels in the academic community.

The courses required for the M.A. are consistent with many of the requirements for the Ph.D.

Each student and his or her faculty adviser develop an individualized plan of study. A preliminary plan of study is developed within the first 9 s.h. of graduate study, and a final plan is submitted to the Graduate College when the Ph.D. comprehensive examination is scheduled.

To ensure breadth of knowledge, all students must complete specific scientific area core courses. Elective courses are selected to provide in-depth study of a defined specialty and are complemented by an advanced seminar course specific to the student’s specialty and taken in preparation for the comprehensive examination. Students must take a minimum of 20 s.h., excluding research, in their defined specialty area. Other requirements include specific core tools and practicum courses, which provide background knowledge and skill acquisition for teaching and research. Doctoral study culminates with 12 s.h. of thesis research and an oral examination.

**Curriculum**

The Ph.D. requires at least 42 s.h. beyond the master’s degree (30 s.h.) and at least 20 s.h. of formal study in the student’s defined specialty area. Students must satisfactorily complete the comprehensive examinations, which should be taken after all required course work is completed.

The following semester-hour requirements include master’s degree prerequisites.
GENERAL CORE REQUIREMENTS
The requirement is 41 s.h.
101:212 Biomedical Instrumentation and Measurement 4 s.h.
101:220 Seminar in Rehabilitation Science 1 s.h.
Two approved courses in statistics (prerequisite to master's course work):
22S:102/148 Introduction to Statistical Methods/Intermediate Statistical Methods 6 s.h.
or
171:161/162 Introduction to Biostatistics/Design and Analysis of Experiments in the Biomedical Sciences 6 s.h.
One approved course in methods of teaching (UFP:385 Teaching and Learning in Higher Education) 3 s.h.
101:280 Teaching Practicum 3 s.h.
Research requirements
(all of these, for total of 10 s.h.):
101:284 Practicum in Research arr.
101:325 Independent Study arr.
101:327 Research in Rehabilitation Science arr.
Both of these:
101:301 Thesis Rehabilitation Science (Ph.D.) (thesis proposal must be approved before data are collected) 12 s.h.
101:326 Scientific Writing in Rehabilitation Science 2 s.h.
SCIENTIFIC CONTENT CORE AND SPECIALTY FOCUS REQUIREMENTS
Students take one first-level course from each of the three specialty areas, and one second-level course from two of the three specialty areas (courses outside the department may be substituted when appropriate, with the adviser's consent). Specialty focus courses include 101:214 Advanced Seminar in Rehabilitation Science (a specialty-oriented seminar taken in preparation for the Ph.D. comprehensive exam) and elective specialty courses to provide at least 20 s.h. in the student's specialty area.
The requirement is 29-32 s.h.

Cardiopulmonary
First-level courses:
027:141 Exercise Physiology 3 s.h.
101:206 Cardiopulmonary Therapeutics (with lab) 3 s.h.
Second-level courses:
027:274 Advanced Exercise Physiology 3 s.h.
101:260 Advanced Health Promotion and Cardiopulmonary Therapeutics 3 s.h.
An advanced exercise physiology laboratory (respiratory and cardiovascular)
Specialty focus courses:
101:214 Advanced Seminar in Rehabilitation Science 3 s.h.
Elective specialty courses 10 s.h.
Musculoskeletal
First-level courses:
027:107 Introduction to Biomechanics 3 s.h.
101:210 Kinesiology and Pathomechanics (with lab) 4 s.h.
Second-level courses:
027:155 Skeletal Muscle Biology 3 s.h.
027:197 Biomechanics of Human Motion 4 s.h.
058:190 Readings in Mechanical Engineering (Statics) 3 s.h.
101:285 Biomechanical Analysis in Rehabilitation 3 s.h.
175:190 Occupational Ergonomics I 3 s.h.
175:294 Occupational Ergonomics II 3 s.h.
175:295 Clinical Ergonomics 3 s.h.
Specialty focus courses:
101:214 Advanced Seminar in Rehabilitation Science 3 s.h.
Elective specialty courses 0-11 s.h.
Seminar on current developments in biomechanics 0 s.h.
Neuromuscular
First-level courses:
027:160 Motor Control I: Neuropsychological Basis 3 s.h.
101:224 Principles of Motor Control and Applied Neuroscience (required for the master's degree) 4 s.h.
Second-level courses:
027:155 Skeletal Muscle Biology 3 s.h.
027:314 Seminar in Motor Control 2 s.h.
060:234 Medical Neuroscience 4 s.h.
071:207 Neuropharmacology 3 s.h.
101:275 Analysis of Sensor-Motor Systems in Health and Disease 3 s.h.
101:277 Mechanisms of Pain Transmission 3 s.h.
101:295 Applied Electromyography 3 s.h.
132:180 Fundamental Neuroscience 4 s.h.
Specialty focus courses:
101:214 Advanced Seminar in Rehabilitation Science 3 s.h.
Elective specialty courses 11 s.h.
ELECTIVES
The requirement varies.

Admission
Applicants should have a g.p.a. of at least 3.00 (B average) on work completed for the master's degree, a score of at least 1100 on the Graduate Record Examination General Test (total for the verbal and quantitative components), and three letters of reference. International applicants must score at least 250 on the computer-based TOEFL exam. A minimum of two years of clinical experience is considered highly desirable.

All applicants must complete an application to the Graduate College. The application, including test scores, transcripts, and letters of reference, should be sent directly to the graduate program in physical therapy (the M.A./Ph.D. program committee decides which applicants to interview). An interview on the University of Iowa campus is preferred, but a telephone interview may be substituted when necessary.

Financial Support
A number of teaching and research assistantships are available for M.A. and Ph.D. students. Faculty advisers provide guidance for students seeking external scholarship support through foundations and federal programs that support Ph.D. training.

Research Facilities
The program's state-of-the-art research facilities include a gait laboratory and spinal cord research laboratory at University Hospitals and Clinics, two motor control/neuromuscular/EMG laboratories, an exercise physiology (cardiopulmonary) laboratory, a human performance laboratory, an ergonomics laboratory, and a basic science pain laboratory (animal). Use of other laboratories may be arranged.

Courses
101:119 Physical Therapy Management and Administration I 2 s.h.
101:121 Professional Issues and Ethics 1 s.h.
101:121 Physical Therapy Management and Administration II 1 s.h.
101:131 Therapeutic Physical Agents 1 s.h.
101:133 Pain Mechanisms and Treatment 2 s.h.
101:134 Physical Therapy Management of the Integumentary System 2 s.h.
101:140 Introduction to Physical Therapy Practice 2 s.h.
### 101:141 Principles of Physical Therapy I
2 s.h.
Patient management skills: documentation, basic assessment, preambulatory activities, joint range-of-motion, strength assessment, patient transfer, gait assessment and training, negotiation of architectural barriers.

### 101:142 Principles of Physical Therapy II
2 s.h.
Continuation of 101:141; expansion of previously learned skills in documentation; joint range of motion/goniometry; manual muscle testing, preambulatory intervention strategies; postural assessment, gait analysis, performance of myromyotonometer, neuromuscular, and integumentary systems review. Prerequisite: 101:141.

### 101:143 Selected Topics in Physical Therapy Practice
2 s.h.
Specialty topics in physical therapy, such as women’s health, geriatrics, sports taping, advanced manual therapy, orthopedic pediatrics, cancer-induced therapy. Prerequisite: physical therapy and rehabilitation science student standing.

### 101:151 Progressive Functional Exercise
2 s.h.
Therapeutic exercise options (e.g., isometrics, isotonics, isokinetics, polyomics, endurance exercises, stretching exercises) and training principles; application to functional activities, including those of daily living, work, recreation, and sport; laboratory component: physical therapy and rehabilitation science student standing.

### 101:170 Prosthetics and Orthotics
2 s.h.
Physical therapy management and assessment of patients in need of prosthetic and orthotic devices; principles and components of prosthetic and orthotic design and use.

### 101:172 Radiology / Imaging for Physical Therapists
3 s.h.
Principles, procedures, and interpretation of selected diagnostic imaging techniques; plain film radiology, myelograms, CT scans, medical resonance imaging, lecture laboratory format with small group clinical case presentations.

### 101:173 Differential Diagnosis in Physical Therapy
2 s.h.
Use of physical therapy examination and evaluation skills to diagnose physical therapy problems; focus on use of good clinical decision making by analyzing a patient’s history and administering physical therapy tests and measures to confirm or rule out differential diagnoses.

### 101:176 Pharmacology for Physical Therapists
3 s.h.
Contemporary pharmacology; overview of basic pharmacokinetic and pharmaco-dynamic principles; relation of drug therapy to therapeutic interventions provided by physical therapists; small group clinical case presentations.

### 101:185 Musculoskeletal Therapeutics I
3 s.h.
Musculoskeletal and biomechanical principles applied to assessment and evaluation of common orthopedic problems; problem solving, case-study approach to clinical methods, skill acquisition.

### 101:189 Clinical Education I
1 s.h.
Integrated education, skill experiences in area physical therapy clinics; overview of the diverse nature of practice through half- or full-day experience; basic skills in examination, intervention, documentation.

### 101:190 Clinical Education II
1 s.h.
Continuation of 101:189, integrated half-day clinical experiences. Prerequisite: 101:189.

### 101:191 Clinical Education III
1 s.h.
Two-week, full-time clinical experience in physical therapy clinics in Iowa, under the guidance of physical therapists. Prerequisite: 101:190.

### 101:192 Clinical Education IV
1 s.h.
Continuation of 101:191; theory and practice of physical therapy procedures; development of competence in basic skills through two-week, full-time clinical experience.

### 101:194 Clinical Internship
arr.
Full-time clinical education divided among varied settings; development of competence in independent examination, evaluation, and treatment of patients under supervision of clinical faculty.

### 101:200 Pediatric Physical Therapy
arr.
Preparation for physical therapy practice in pediatric settings using family-centered practice; service delivery settings, interventions, and management strategies specific to pediatrics.

### 101:201 Applied Clinical Medicine
2 s.h.
Pathological disorders frequently encountered by physical therapists in clinical practice, addressed by physicians and health professionals who are not physical therapists; physical therapy management.

### 101:202 Musculoskeletal Therapeutics II
3 s.h.
Pathology, assessment, and management of orthopaedic disorders of the upper quarter; problem-solving approach to evaluation and management of patients with musculoskeletal conditions.

### 101:203 Musculoskeletal Therapeutics III
4 s.h.
Pathology, assessment, management of orthopaedic disorders of the lower quarter; problem-solving approach to evaluation and management of patients with musculoskeletal conditions.

### 101:205 Health Promotion and Wellness
3 s.h.
Overview of health promotion, fitness, and wellness strategies, with background information on applied physiology (energy metabolism and physiological responses to exercise), exercise testing and training guidelines, body composition assessment, diet, body weight management; laboratories, development of individual weight management and exercise training programs.

### 101:206 Cardiopulmonary Therapeutics
3 s.h.
Cardiopulmonary anatomy, physiology, and application of basic concepts, techniques in management of patients with acute and chronic cardiac, pulmonary disorders; laboratories.

### 101:209 Surface Anatomy
1 s.h.
Laboratory teaching activities that parallel the human anatomy course; observational and practical skills; upper and lower-limb, head and neck, thorax, and abdomen.

### 101:210 Kinesiology and Pathomechanics
4 s.h.
Normal and pathological movement based on understanding of muscle mechanics, segment and joint mechanics, muscle function, instructor- and student-centered learning experiences; EMG laboratories.

### 101:212 Biomedical Instrumentation and Measurement
4 s.h.
Basic principles of electronics, measurement; their application to physical therapy research, practice. Offered fall semesters.

### 101:214 Advanced Seminar in Rehabilitation Science
arr.
Current status of research for biological, mechanical, psychological components pertinent to cardiorespiratory, musculoskeletal, neuromuscular areas of rehabilitation science; preparation for comprehensive exam.

### 101:220 Seminar in Rehabilitation Science
arr.
Seminar and journal club. Three consecutive enrollments required.

### 101:224 Principles of Motor Control and Applied Neuroscience
4 s.h.
Sensorimotor mechanisms involved with normal and abnormal neuromuscular system function; skeletal muscle properties/plasticity, muscle fatigue, neural mechanisms of muscle strengthening, spinal circuitry, simple and complex reflexes, spasticity, rigidity, posture control/balance, motor learning, applied neurological assessment of pathological conditions, such as stroke, SCI.

### 101:225 Neuromuscular Therapeutics
3 s.h.
Techniques used in evaluation, treatment of persons with nervous system dysfunction; methods of identifying and scientific rationale for abnormal sensorimotor activity and movement; normal, abnormal motor development; techniques used to provide comprehensive instructional and home rehabilitation programs for conditions such as stroke, traumatic brain injury, multiple sclerosis, Parkinson’s disease, cerebral palsy, vestibular disorders, spinal cord injury. Prerequisite: 101:224.

### 101:235 Case-Based Learning I
Small-group seminars and simulated patient-instructor clinical assessment labs; two clinical cases per semester; clinical problems coordinated with concurrent course work; student-centered, problem-based learning format with emphasis on evidence-based practice objectives. First in a four-course sequence. Prerequisite: 101:236.

### 101:236 Case-Based Learning II
Small-group seminars and simulated patient-instructor clinical assessment labs; two clinical cases per semester; clinical problems coordinated with concurrent course work; student-centered, problem-based learning format with emphasis on evidence-based practice objectives. Second in a four-course sequence. Prerequisite: 101:235.

### 101:237 Case-Based Learning III
Small-group seminars and simulated patient-instructor clinical assessment labs; two clinical cases per semester; clinical problems coordinated with concurrent course work; student-centered, problem-based learning format with emphasis on evidence-based practice objectives. Third in a four-course sequence. Prerequisite: 101:236.

### 101:238 Case-Based Learning IV
Small-group seminars and simulated patient-instructor clinical assessment labs; two clinical cases per semester; clinical problems coordinated with concurrent course work; student-centered, problem-based learning format with emphasis on evidence-based practice objectives. Fourth in a four-course sequence. Prerequisite: physical therapy and rehabilitation science student standing.

### 101:248 Research in Physical Therapy
2 s.h.
Topics relevant to the research process and concepts of the scientific method, including identification and development of research questions, research ethics, methods of literature research, statistical methods, presentation of research findings, critique of literature; focus on becoming informed, critical consumers of literature relevant to physical therapy. Prerequisite: physical therapy and rehabilitation science student standing.

### 101:251 Critical Inquiry in Physical Therapy I
2 s.h.
Introduction to evidence-based practice tools, such as rehabilitation databases, methods to sort and analyze health care research outcomes, applications to clinical practice and decision making. Prerequisite: physical therapy and rehabilitation science student standing.

### 101:252 Critical Inquiry in Physical Therapy II
1 s.h.

### 101:260 Advanced Health Promotion and Cardiopulmonary Therapeutics
arr.
Anatomical, physiological principles applied to health care continuum, including wellness programs, cardiac and pulmonary rehabilitation; emphasis on body composition and weight control, exercise and cardiopulmonary adaptations to training; laboratories. Offered spring semesters.

### 101:275 Analysis of Sensor-Motor Systems in Health and Disease
arr.
Neurophysiological mechanisms underlying posture, movement in normal, pathologic conditions; motor adaptations to neuromuscular system function, including skeletal muscle plasticity, muscle fatigue, neurological adaptations to strengthening, spinal circuitry, spasticity, rigidity, posture/balance, motor learning, specific applications to SCI, stroke, cerebellar disease. Offered fall semesters. Prerequisite: consent of instructor.

### 101:277 Mechanisms of Pain Transmission
arr.
Anatomical, physiological, and pharmacological mechanisms underlying peripheral and central neuronal processing of pain; emphasis on neuronal changes that occur during pathological conditions such as inflammation/arthrosis, peripheral neuropathy. Same as 101:277.

### 101:280 Teaching Practicum
arr.
Individual instruction, observation, experientiation in teaching, guidance, analysis of evaluation processes in Program in Physical Therapy and Rehabilitation Science.

### 101:282 Clinical Educational Practicum
arr.
Individualized clinical experience in selected physical therapy settings; instructor-student development of objectives, learning contract.

### 101:284 Practicum in Research
arr.
Laboratory experiences connected with investigative process; individual instruction, observation, activities in methodological development, data acquisition, data analysis, and data interpretation; research.

### 101:285 Biomechanical Analysis in Rehabilitation
arr.
Assessment of pathological movement through human movement analysis techniques, including link segment modeling and analysis, mechanical energy and power analysis, electromyography and muscle modeling.

### 101:295 Applied Electromyography
3 s.h.
Physiological bases of electromyographic signals; intramuscular/surface electrode techniques performed in laboratory; temporal and frequency analysis of the signal; introduction to EMG/force relationship, motor unit activity, muscle fatigue. Prerequisite: consent of instructor.

### 101:301 Thesis: Rehabilitation Science
arr.
Individual study, research, scientific investigation; independent research project, written thesis. Includes oral defense. Prerequisites: three consecutive enrollments in scientific methods course; written research proposals required.

### 101:302 Substantive Seminar on Rehabilitation Science
arr.
Overview of current rehabilitation research, professional health care literature, current issues of concern for the rehabilitation community. Prerequisite: 101:301.

### 101:325 Independent Study
arr.
Research topics: faculty-student relationship, independent research projects. Prerequisites: 101:326, consent of instructor.

### 101:326 Scientific Writing in Rehabilitation Science
arr.
Writing and critical evaluation of research proposals, grant applications, scientific papers. Offered spring semesters of odd years.

### 101:327 Research in Rehabilitation Science
arr.
Placement of physical therapy on sound scientific base; therapy evaluation, research, utilization, research ethics; methods of literature research, research designs, statistical methods, presentation of research findings, critique of literature; focus on becoming informed, critical consumers of literature relevant to physical therapy. Prerequisite: physical therapy and rehabilitation science student standing.
The Physician Assistant Program is one of five academic units in the Division of Associated Medical Sciences. For detailed information on the division's general academic policies, see “Division of Associated Medical Sciences” in the Catalog.

The physician assistant profession is one of the newest and most exciting in health care. Physician assistants (PAs) are licensed to practice medicine with physician supervision. Within the physician/PA relationship, the PA is responsible for making medical decisions and providing a broad range of diagnostic and therapeutic services. The PA may function in a variety of settings, including a hospital, hospital emergency room, nursing home, rural satellite clinic, health maintenance organizations, and in the patient's home.

In the traditional office setting, the PA sees patients, obtains histories, performs physical examinations, and orders necessary laboratory and/or radiological studies. Based on this information, the PA establishes a diagnosis, develops an appropriate management plan, and initiates treatment that may include prescribing medications. The physician is consulted as needed and ultimately responsible for the care provided by the physician/PA team. PAs also are involved in both patient and community health education.

The Physician Assistant Program at The University of Iowa is accredited by the Accreditation Review Commission on Education for the Physician Assistant, Inc., and is a member of the Association of the Physician Assistant Programs. Completion of the program qualifies students for the Master of Physician Assistant Studies degree and for the opportunity to take the National Certifying Examination for Primary Care Physician Assistants. Successful completion of the national certifying examination is a prerequisite for registration as a physician assistant in Iowa.

Physician assistants in all types of health care settings are increasingly in demand, due to expansion of their role into a variety of health care situations and to organizational changes in the health care industry. The educational program at The University of Iowa emphasizes primary care medicine, and in particular, family medicine. Because of the growth of employment opportunities for physician assistants in specialty areas of medicine, the program also offers elective clinical rotations in selected subspecialties of medicine.

Master of Physician Assistant Studies

The Physician Assistant Program is an integral part of the Carver College of Medicine. The first year of the program is provided at the University of Iowa Health Sciences Center. A major portion of the second-year clinical work takes place throughout the state in hospitals, clinics, and office practice settings. The physician assistant curriculum spans 25 months and is divided into two phases.

The first phase begins in late May with seven months of course work in a number of basic science areas, including anatomy, biochemistry, infectious disease, pathology, pharmacology, and physiology. Whenever appropriate, related subjects are integrated to provide sequential lecture and laboratory experience. Also offered during this session are courses in clinical decision making. An introductory course on taking a medical history and performing a physical examination helps students expand their ability to perform selected elements of the history and exam.

The program has developed a new curriculum in patient assessment. A sequence of didactic instruction is coupled with practical experiences involving simulated and real patients. The level and intensity of patient interactions increase throughout the curriculum as the student gains confidence and clinical competence.

The curriculum's first phase also includes a five-week interim session followed by a 12-week introduction to clinical medicine for physician assistant students. In the five-week interim session, the infectious disease and pharmacology courses continue, and students take a professional seminar course, in which they research and discuss professional issues that will impact their practice as physician assistants.

The spring semester consists of a 12-week introduction to clinical skills for physician assistant students, which includes three interrelated courses. These courses involve the application of basic science knowledge to the understanding of clinical-pathologic correlations of common and/or catastrophic disorders encountered in the major disciplines of clinical medicine. They continue with instruction in obtaining a problem-oriented medical history and performing a physical examination. Physician assistant students complete approximately 65 percent of the first-year didactic curriculum with sophomore medical students.

Three weeks before clinical rotations, students complete Foundations of Clinical Practice, which includes instruction in several skill areas (suturing, injections, prescription writing, medical orders, and so forth), completion of the Advanced Cardiac Life Support Program, and short courses in clinical pathology and rural medicine.

The curriculum's second phase consists of a 42-week core primary-care clinical curriculum, including six weeks each of family medicine I, family medicine II, general internal medicine, pediatrics, and surgery, and four weeks each of emergency medicine, gynecology, and psychiatry. Students select electives six weeks in length.

These may include geriatrics, cardiology, dermatology, and orthopaedics.

The clinical rotations are designed to provide instruction in patient assessment and experience in caring for patients in a way that facilitates effective integration of the knowledge, skills, behaviors, and attitudes derived from the basic science and preclinical phases of the program. Clinical training is provided at University of Iowa Hospitals and Clinics, the Veterans Affairs Medical Centers in Iowa City and Des Moines, Broadlawns Medical Center in Des Moines, and other affiliated hospitals throughout the state. The program emphasizes primary care medicine, offering students additional clinical experience through placement with selected preceptors involved in office-based practices, typically in medically underserved rural areas.

The didactic and clinical phases of the PA program emphasize primary health care delivery and the use of physician assistants as members of the health care team. The program is integrated with teaching at the Carver College of Medicine, permitting interdisciplinary activities between various medical and health care professional students.

The curriculum's independent study component (117:201) requires students to select a pertinent health question and apply an evidence-based medicine review of the data. Students then write a concise two-page summary and make a verbal presentation of their findings to their colleagues.

Professional Curriculum

**FIRST YEAR (PHASE I)**

**Summer and Fall**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>050:174</td>
<td>Foundations of Clinical Practice for Physician Assistants</td>
<td>5 s.h.</td>
</tr>
<tr>
<td>060:111</td>
<td>Gross Human Anatomy for Physician Assistant Students</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>061:104</td>
<td>Principles of Infectious Diseases for Physician Assistant Students</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>069:133</td>
<td>Introduction to Human Pathology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>071:125</td>
<td>Pharmacology for Health Sciences: Physician Assistant Students</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>072:164</td>
<td>Human Physiology for Physician Assistant Students</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>099:164</td>
<td>Biochemistry for Physician Assistant Students</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>117:101</td>
<td>Introduction to Medical History</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>117:103</td>
<td>Clinical Decision Making I</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>117:104</td>
<td>Clinical Decision Making II</td>
<td>1 s.h.</td>
</tr>
</tbody>
</table>

**Spring**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>050:175</td>
<td>Foundations of Clinical Practice IV for Physician Assistant Students</td>
<td>17 s.h.</td>
</tr>
<tr>
<td>050:182</td>
<td>Health Law</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>069:130</td>
<td>Clinical Laboratory Medicine for Physician Assistant Students</td>
<td>1 s.h.</td>
</tr>
</tbody>
</table>

**SECOND YEAR (PHASE II)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>117:107</td>
<td>Seminar for Physician Assistant Students</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>117:110</td>
<td>Introduction to Clinical Skills</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>175:209</td>
<td>Rural Health and Agricultural Medicine</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>
The following are required clinical rotations.

117:300 Emergency Medicine for Physician Assistant Students 4 s.h.
117:301 Gynecology for Physician Assistant Students 4 s.h.
117:302 Family Practice I for Physician Assistant Students 6 s.h.
117:303 Family Practice II for Physician Assistant Students 6 s.h.
117:304 General Surgery for Physician Assistant Students 6 s.h.
117:305 Internal Medicine for Physician Assistant Students 6 s.h.
117:306 Pediatrics for Physician Assistant Students 4, 6 s.h.
117:307 Psychiatry for Physician Assistant Students 4 s.h.

Elective clinical rotations are selected from the following.

117:321 Dermatology Elective for Physician Assistant Students arr.
117:322 Neurology Elective for Physician Assistant Students arr.
117:323 Obstetrics for Physician Assistant Students arr.
117:324 Ophthalmology Elective for Physician Assistant Students arr.
117:325 Otolaryngology Elective for Physician Assistant Students arr.
117:326 Pediatric Elective for Physician Assistant Students arr.
117:327 Radiology Elective for Physician Assistant Students arr.
117:328 Pediatric (Bone Marrow Transplant) Elective for Physician Assistant Students arr.
117:329 Pediatric (Cardiology) Elective for Physician Assistant Students arr.
117:330 Psychiatry Elective for Physical Assistant Students arr.
117:331 Surgery Elective for Physician Assistant Students arr.
117:332 Surgery (Transplant/ Organ Retrieval) Elective for Physician Assistant Students arr.
117:333 Surgery (Burn Unit) Elective for Physician Assistant Students arr.
117:334 Surgery (Cardiac Surgery) Elective for Physician Assistant Students arr.
117:335 Orthopaedics Elective for Physician Assistant Students arr.
117:336 Internal Medicine Elective for Physician Assistant Students arr.
117:337 Internal Medicine (Cardiology) Elective for Physician Assistant Students arr.
117:338 Internal Medicine (Electrocardiograph) Elective for Physician Assistant Students arr.
117:340 Internal Medicine (Oncology) Elective for Physician Assistant Students arr.
117:341 Internal Medicine (Geriatrics) Elective for Physician Assistant Students arr.
117:342 Internal Medicine (Pulmonary) Elective for Physician Assistant Students arr.
117:343 Internal Medicine (Hospice) Elective for Physician Assistant Students arr.
117:344 Internal Medicine (Infectious Disease) Elective for Physician Assistant Students arr.
117:345 Internal Medicine (Medical Genetics) Elective for Physician Assistant Students arr.
117:346 Internal Medicine (Complementary and Alternative Medicine) Elective for Physician Assistant Students arr.
117:347 Urology Elective for Physician Assistant Students arr.
117:348 Family Practice Elective for Physician Assistant Students arr.
117:349 Gynecology (Women's Health) Elective for Physician Assistant Students arr.
117:350 Migrant Health Elective for Physician Assistant Students arr.
117:351 Occupational Medicine for Physician Assistant Students arr.
117:353 Internal Medicine (Rheumatology) for Physician Assistant Students arr.
117:354 Medical Intensive Care for Physician Assistant Students arr.

Admission

In order to be considered for admission to the physician assistant professional program, applicants must meet the following requirements.

They must hold a baccalaureate degree from a regionally accredited institution in the United States. They must have a cumulative and science g.p.a. of at least 3.00 and must have taken the Graduate Record Examination (GRE) General Test within the last 10 years. They must have at least 1,200 hours of health care and/or research experience.

They must have completed the following preparatory science courses: complete courses in inorganic and organic chemistry; a complete introductory course in animal biology or zoology; and general statistics or biostatistics.

They also must have completed the following upper-division science courses: human or animal physiology (lower division, combined anatomy/physiology course(s) do not satisfy this requirement); a minimum of three upper-division-level courses (highly recommended are endocrinology, microbiology, and histology; also recommended are cell biology, cell physiology, genetics, molecular biology, neurobiology, and parasitology); general introductory biochemistry (a combined organic/biochemistry course does not satisfy this requirement).

Applicants must have achieved a cumulative and science g.p.a. of at least 3.00 on all course work completed at the college or university level. The admissions committee gives special attention to applicants' performance in science courses. In the past, successful applicants have had a cumulative and science g.p.a. of at least 3.70; a total of 141 s.h. of college credit, including at least 81 s.h. in the sciences; and more than 3,000 hours of clinical and/or research experience.

Satisfaction of the basic admission requirements does not ensure acceptance into the Physician Assistant Program. The admissions committee selects the applicants it considers best qualified. Applicants with previous health care experience involving direct patient contact receive preferential consideration. The committee requests interviews with the most qualified applicants.

Each new class begins in late May. Applications are accepted from July 1 to November 15. Each applicant must complete the Association of Physician Assistant centralized application, which includes three letters of recommendation, GRE scores, and transcripts. The majority of prerequisite course requirements must be completed by the November 15 application deadline.

Expenses

In addition to general University student expenses, students in the Physician Assistant Program are responsible for the purchase of their medical uniforms and diagnostic equipment, an expense of approximately $1,500. Microscopes are not required.

Courses

117:001 Physician Assistant Clinical Second Year arr.
117:101 Introduction to Medical History and Physical Examination for Physician Assistant Students 0-3 s.h.
117:103 Clinical Decision Making I 1 s.h.
117:104 Clinical Decision Making II 1 s.h.
117:107 Seminar for Physician Assistant Students 1 s.h.
117:110 Introduction to Clinical Skills 1 s.h.
117:201 Independent Study 1 s.h.
117:210 Physician Assistant Internship Seminar 2 s.h.
117:300 Emergency Medicine for Physician Assistant Students arr.
117:301 Gynecology for Physician Assistant Students 4 s.h.
117:302 Family Practice I for Physician Assistant Students 6 s.h.
117:303 Family Practice II for Physician Assistant Students 6 s.h.
117:304 General Surgery for Physician Assistant Students 6 s.h.
117:305 Internal Medicine for Physician Assistant Students 6 s.h.
117:306 Pediatrics for Physician Assistant Students 4, 6 s.h.
117:307 Psychiatry for Physician Assistant Students 4 s.h.
117:321 Dermatology Elective for Physician Assistant Students arr.
117:322 Neurology Elective for Physician Assistant Students arr.
117:323 Obstetrics for Physician Assistant Students arr.
117:324 Ophthalmology Elective for Physician Assistant Students arr.
117:325 Otolaryngology Elective for Physician Assistant Students arr.
117:326 Pediatric Elective for Physician Assistant Students arr.
117:327 Radiology Elective for Physician Assistant Students arr.
117:328 Pediatric (Bone Marrow Transplant) Elective for Physician Assistant Students arr.
117:329 Pediatric (Cardiology) Elective for Physician Assistant Students arr.
117:330 Psychiatry Elective for Physician Assistant Students arr.
117:331 Surgery Elective for Physician Assistant Students arr.
117:332 Surgery (Transplant/ Organ Retrieval) Elective for Physician Assistant Students arr.
117:333 Surgery (Burn Unit) Elective for Physician Assistant Students arr.
117:334 Surgery (Cardiac Surgery) Elective for Physician Assistant Students arr.
117:335 Orthopaedics Elective for Physician Assistant Students arr.
117:336 Internal Medicine Elective for Physician Assistant Students arr.
117:337 Internal Medicine (Cardiology) Elective for Physician Assistant Students arr.
117:338 Internal Medicine (Electrocardiograph) Elective for Physician Assistant Students arr.
117:340 Internal Medicine (Oncology) Elective for Physician Assistant Students arr.
117:341 Internal Medicine (Geriatrics) Elective for Physician Assistant Students arr.
117:342 Internal Medicine (Pulmonary) Elective for Physician Assistant Students arr.

117:343 Internal Medicine (Hospice) Elective for Physician Assistant Students arr.
117:344 Internal Medicine (Infectious Disease) Elective for Physician Assistant Students arr.
117:345 Internal Medicine (Medical Genetics) Elective for Physician Assistant Students arr.
117:346 Internal Medicine (Complementary and Alternative Medicine) Elective for Physician Assistant Students arr.
117:347 Urology Elective for Physician Assistant Students arr.
117:348 Family Practice Elective for Physician Assistant Students arr.
117:349 Gynecology (Women's Health) Elective for Physician Assistant Students arr.
117:350 Migrant Health Elective for Physician Assistant Students arr.
117:351 Occupational Medicine for Physician Assistant Students arr.
117:353 Internal Medicine (Rheumatology) for Physician Assistant Students arr.
117:354 Medical Intensive Care for Physician Assistant Students arr.
117:301 Gynecology for Physician Assistant Students 4 s.h.
Opportunity to develop proficieny in history and physical exams of gynecological patients; outpatient, family planning, gynecological cancer, concepts of diagnostic techniques and therapy.

117:302 Family Practice I for Physician Assistant Students 6 s.h.
Obtaining and recording complete history and physical exams; formulation of differential diagnosis and problem list; ordering, obtaining, and interpreting lab and diagnostic studies; implementation of therapeutic procedures and treatment plans.

117:303 Family Practice II for Physician Assistant Students 6 s.h.
Opportunity to participate in delivery of ambulatory primary care, at a different site from 117:302.

117:304 General Surgery for Physician Assistant Students 6 s.h.
Preparation for work as an assistant to the generalist; outpatients and inpatient surgical services; including surgical procedures and management of postoperative course.

117:305 Internal Medicine for Physician Assistant Students 6 s.h.
Eliciting a medical history, doing a pertinent physical exam, obtaining indicated lab studies, assessment of results, formulation of management plan and implementation of appropriate therapy for common internal medicine problems.

117:306 Pediatrics for Physician Assistant Students arr.
Knowledge and skills required for providing appropriate medical care to infants, children, and adolescents; initiation and promotion of interpersonal relationships.

117:307 Psychiatry for Physician Assistant Students 4 s.h.
Training in history and physical exams of psychiatric patients, including individual and family therapy, vocational testing and guidance, development of interviewing skills.

117:321 Dermatology Elective for Physician Assistant Students arr.
Recognizing dermatologic diseases and disorders, instituting appropriate management of patients with dermatologic problems.

117:322 Neurology Elective for Physician Assistant Students arr.
Performing general and neurological exams, establishing diagnosis, recommending lab studies, instituting appropriate management of common neurological diseases and disorders, recognizing the need for urgent treatment.

117:323 Obstetrics for Physician Assistant Students arr.
Proficiency in physical exam of OB patients; applying concepts of diagnostic techniques and therapy; following patients' course, delivering, postpartum care.

117:324 Ophthalmology Elective for Physician Assistant Students arr.
Proficiency in recognizing ophthalmology problems; how to institute appropriate management of these conditions.

117:325 Otolaryngology Elective for Physician Assistant Students arr.
Proficiency in recognizing otolaryngology problems; how to institute appropriate management of these conditions; opportunity for involvement in varied surgical procedures.

117:326 Pediatric Elective for Physician Assistant Students arr.
Experience working with children and adolescents.

117:327 Radiology Elective for Physician Assistant Students arr.
Proficiency in systematic evaluation of normal and abnormal routine radiologic examinations; listing indications for special exam procedures, including details of prepping the patient.

117:328 Pediatric Elective (Bone Marrow Transplant) for Physician Assistant Students arr.
Basic clinical knowledge and skills for diagnosis, treatment, and management of pre- and post-bone-marrow transplant patients.

117:329 Pediatric (Cardiology) Elective for Physician Assistant Students arr.
Cardiovascular assessment and problem management of pediatric patients; experience with a range of acute, chronic, common, and rare cardiology diseases.

117:330 Pediatric Elective for Physician Assistant Students arr.
Training in evaluation and treatment of psychiatry patients.

117:331 Surgery Elective for Physician Assistant Students arr.
Experience in a wide range of surgical problems, procedures, and treatments, including diagnosis, care and treatment, and postoperative courses of surgical patients.

117:332 Surgery Elective (Transplant/Organ Retrieval) for Physician Assistant Students arr.
Extensive experience in care of patients with end-stage organ failure; evaluation of potential transplant candidates, participation in surgical procedures on transplant service.

117:333 Surgery Elective (Burn Unit) for Physician Assistant Students arr.
Involvement in care on burn unit and in operating room; skills in burn treatments, grafting techniques, skin storage techniques, dressing changes, tub baths, and physical therapy procedures.

117:334 Surgery Elective (Cardiac Surgery) for Physician Assistant Students arr.
Development of technical skills in operating room; essentials of preoperative evaluation and postoperative management of cardiac surgical patient.

117:335 Orthopedics Elective for Physician Assistant Students arr.
Recognition of varied orthopedic problems and treatments; musculoskeletal diseases and disorders, both emergencies and common conditions, and how to establish appropriate management.

117:336 Internal Medicine Elective for Physician Assistant Students arr.
Training in varied internal medicine problems; recognition, appropriate treatment.

117:337 Internal Medicine (Cardiology) Elective for Physician Assistant Students arr.
Cardiovascular assessment and problem management; experience with wide range of acute, chronic, common, and rare diseases.

117:338 Internal Medicine (EKG) Elective for Physician Assistant Students arr.
Experience reading electrocardiograms, interpreting cardiac arrhythmias, performing and evaluating EKG stress tests.

117:339 Internal Medicine (Gastroenterology) Elective for Physician Assistant Students arr.
Experience with a wide range of gastrointestinal pathology; history and physical exams of gastrointestinal diagnostic procedures, follow-up care of patients through outpatient clinics.

117:340 Internal Medicine (Oncology) Elective for Physician Assistant Students arr.
Experience to develop diagnostic skills in clinical oncology and gain familiarity with methods of staging common cancers; assistance in therapy and outpatient management of cancer patients.

117:341 Internal Medicine (Geriatrics) Elective for Physician Assistant Students arr.
Familiarity with broad spectrum of medical conditions among the elderly; experience in history and physical exams, diagnosis of geriatric patients along with follow-up visits.

117:342 Internal Medicine (Pulmonary) Elective for Physician Assistant Students arr.
Development of basic clinical knowledge and skills for diagnostic, treatment, and management of pulmonary diseases.

117:343 Internal Medicine (Hospital) Elective for Physician Assistant Students arr.
Work on a hospital care team performing evaluation, treatment, and education of patients with terminal illnesses; dealing with the prospect of death.

117:344 Internal Medicine (Infectious Disease) Elective for Physician Assistant Students arr.
Development of basic clinical knowledge and skills for diagnosis, treatment, and management of infectious diseases.

117:345 Internal Medicine (Correctional Medicine) Elective for Physician Assistant Students arr.
Experience with ambulatory medicine in a correctional institution; management of acute and chronic diseases, including HIV, hepatitis B/C, psychiatric conditions; focus on confidentiality, security.

117:346 Internal Medicine (Complementary and Alternative Medicine) Elective for Physician Assistant Students arr.
Current use, practice, and outcomes of complementary and alternative medicine modalities; effective communication with patients and practitioners. Same as 440:105, 440:182.

117:347 Urology Elective for Physician Assistant Students arr.
Proficiency in managing patients with urologic conditions; skill in taking a urologic history, performing physical exams, interpreting laboratory studies and data.

117:348 Family Practice Elective for Physician Assistant Students arr.
Proficiency in delivering ambulatory primary care.

117:349 Gynecology Elective (Women's Health) for Physician Assistant Students arr.
Experience in annual gynecologic exams, PAP screening, gynecology problems, contraception issues, STD screening and counseling, common gynecologic procedures.

117:350 Migrant Health Elective for Physician Assistant Students arr.
Basic clinical knowledge and skills for diagnosis, treatment, and prevention of work-related diseases, injuries, and conditions related to environmental exposure in migrant worker populations.

117:351 Occupational Medicine Elective for Physician Assistant Students arr.
Basic clinical knowledge and skills for diagnosis, treatment, and management of critically ill infants.

117:353 Internal Medicine (Rheumatology) for Physician Assistant Students arr.
Basic clinical knowledge and skills for diagnosis, treatment, and management of rheumatologic diseases.

117:354 Medical Intensive Care Elective for Physician Assistant Students arr.
Basic clinical knowledge and skills for diagnosis, treatment, and management of critically ill patients.

PHYSIOLOGY AND BIOPHYSICS

Head: Kevin P. Campbell
Professors: Francois M. Abboud (Internal Medicine), Nikolai Artemyev, Kevin P. Campbell, Beverly Davidson (Internal Medicine), Gerald DiBona (Internal Medicine), Robert E. Fellowes, Wayne Johnson, Scott Moyer-Rokey, Andrew Russo, Thomas J. Schmitz, Deborah Segaloff, Curt Sigurd (Internal Medicine), M. Bento Soares (Genetics/Pediatrics), Michael J. Welsh (Internal Medicine)

Associate professors: Mark Chapleau (Internal Medicine), Sarah England, Michael Henry, David Kusner (Internal Medicine), Robert Pipp, Jay Rubinstein (Otolaryngology—Head and Neck Surgery), Erwin F. Shahata, Peter Snyder (Internal Medicine), Mark Stammens

Graduate degrees: M.S., Ph.D. in Physiology and Biophysics

Web site: http://www.physiology.uiowa.edu
Medical Scientist Training Program, a combined M.D./Ph.D. program conducted under the auspices of the Graduate College and the Carver College of Medicine. It also conducts a co-op exchange, a vigorous training program that gives undergraduate students the opportunity to develop as independent researchers in preparation for graduate studies.

Principal areas of interest represented in the department are cell biology, genetics, endocrinology, neuroscience, and membrane physiology and biophysics, with the unifying theme of understanding mechanisms of signal transduction involved in regulating function at the cellular and molecular levels.

**Master of Science**

The Master of Science is offered without thesis. It requires 30 s.h. of graduate credit, a library research report, and a written examination on the area of the research report and the graduate program in physiology.

**Doctor of Philosophy**

The physiology and biophysics graduate program provides students with fundamental knowledge of life processes at molecular, cellular, and integrative levels of biological function. It also imparts knowledge of modern research skills applicable to contemporary problems.

Students enter the graduate program through the Biosciences Program (see the Graduate College section of the Catalog) or directly through the Department of Physiology and Biophysics. Those who enter directly are advised by the director of graduate studies, who provides guidance in planning required course work and an introduction to research activities of departmental faculty members.

The core curriculum includes graduate-level courses in cell biology, molecular biology, human physiology, and neurophysiology. Advanced electives, offered by physiology and biophysics and other departments, cover a wide range of topics, including receptors and signal transduction, and developmental physiology.

After successful completion of the course and comprehensive examination requirements, students devote full time to thesis research, which culminates in preparation of a doctoral dissertation and its defense in a final oral exam.

All degree candidates have experience as classroom instructors, under faculty supervision, as part of their training.

**Admission**

Applicants for graduate admission must complete undergraduate studies at an accredited institution before matriculation with an overall science g.p.a. of at least 3.00, coupled with a combined verbal and quantitative score above 1200 on the Graduate Record Examination (GRE) General Test. The appropriate background for graduate study in cellular and molecular physiology and biophysics includes an undergraduate major in one of the biological, chemical, physical, mathematical, or engineering sciences with one or more years of course work in biology, physics, biochemistry, and calculus.

**Financial Support**

All full-time doctoral students receive financial aid in the form of tuition and stipend support from the Department of Physiology and Biophysics. Support is renewed annually based on satisfactory progress in meeting requirements for the Ph.D. degree.

**Research**

The department’s general research interests encompass molecular and cellular endocrinology, cellular and developmental neurophysiology, and membrane structure and function. Within these, there are multiple areas of interest, including hormone receptors, reproductive endocrinology, signal transduction, regulation of gene expression, synaptic transmission, neuronal differentiation, membrane ion channels, regulation of excitability, and cardiovascular electrophysiology and regulation.

**Facilities**

Two floors of the Bowen Science Building are devoted to research and teaching in the Department of Physiology and Biophysics. Department faculty members also occupy laboratory facilities in the Eckstein Medical Research Building. In addition to specialized equipment in faculty research laboratories, the department has an extensive local area network with direct access to the University network, the Internet, and the multimedia education facility. The department also provides equipment for fluorescence microscopy, isotope analysis, cell culture, and molecular biology. Resources are available at the Hardin Library for the Health Sciences.

**Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>072:150</td>
<td>Principles of human physiology, organ systems, cell function</td>
<td>4 s.h.</td>
<td>Pre-requisite: advanced degree candidacy in physiology and biophysics.</td>
</tr>
<tr>
<td>072:151</td>
<td>Intermediate Physiology</td>
<td>4 s.h.</td>
<td>Pre-requisite: consent of instructor. Same as 156:265.</td>
</tr>
<tr>
<td>072:152</td>
<td>Human Physiology for Dental Students</td>
<td>4 s.h.</td>
<td>Pre-requisite: consent of course director.</td>
</tr>
<tr>
<td>072:153</td>
<td>Graduate Physiology</td>
<td>4 s.h.</td>
<td>Pre-requisite: consent of course director.</td>
</tr>
<tr>
<td>072:154</td>
<td>Physiology for Biomedical Engineering Students</td>
<td>4 s.h.</td>
<td>Pre-requisite: consent of instructor.</td>
</tr>
<tr>
<td>072:164</td>
<td>Human Physiology for Physician Assistant Students</td>
<td>4 s.h.</td>
<td>Pre-requisite: consent of instructor.</td>
</tr>
</tbody>
</table>

**PSYCHIATRY**

**Head:** Robert G. Robinson

**Professors:** Arnold Andersen, Nancy Andreasen, Stephen Arndt, Donald Black, Kathleen Buckwalter, Brian Cook, William Coryell, Raymond Crowe, Michael Garvey, Samuel Kuperman, Delwyn Miller, Daniel O’Leary, June S. Paulsen, Paul Perry, Bruce Pihl, Scott Stuart, Verónica Vieland

**Associate professors (clinical):** Bruce Alexander, Wayne Bowers

**Assistants:** George Bergus, Michael Flaim, Gary Gaffney, Peggy Nopoulos, Robert Philipp, Susan Schultz, Victor Swayze, Thomas Wassink, Catherine Woodman

**Associate professors (clinical):** James Amos, John Bayless, James Beeghly, Judith Crossen, Jerry Lewis, Jill Liesveld, Robert Smith, Janetta Tansey, Scott Temple

**Assistant professors:** Leigh Beglinger, Anjan Bhattacharyya, Beng Choong Ho, Kevin Duff, Tracy Gunter, Ricardo Jorge, Vicki Kiewski, Douglas Landbom, David Nesser, Sergio Paradiso, Carolyn Turvey, John Wernim

**Assistant professors (clinical):** Sarah Brown, Aruna Gottumukkala, Barb Hagen, Anne Kolar, Linda Madison,
The Department of Psychiatry teaches medical students and trainees resident physicians for academic and clinical careers in psychiatry. It instructs medical students principally during their third year. It offers no degree program.

The department maintains a four-year training program approved by the Residency Review Committee of the American Medical Association. Training experiences are available at University of Iowa Hospitals and Clinics and at the Veterans Affairs Medical Center. Additional experiences are available at affiliated institutions: Broadlawns Medical Center in Des Moines, the Iowa Medical and Classification Center at Oakdale, the Mid-Eastern Iowa Community Mental Health Center in Iowa City, and the Mental Health Institute at Independence.

The department offers an approved two-year residency in child psychiatry. A geriatric fellowship is available after residency training.

The department’s staff is involved in genetic and family studies of psychiatric disorders and in research in genetic and biological psychiatry, neurochemistry, neuroimaging, neurophysiology, neuropsychiatry, and psychosocial aspects of behavior.

Many research opportunities in psychiatry are available to students and residents, and the basic science areas of neurochemistry, neurophysiology, and electrophysiology offer additional opportunities. The clinical areas of psychology, psychiatry as a consultation service. Prerequisite: medical student standing.

Many research opportunities in psychiatry are available to students and residents, and the basic science areas of neurochemistry, neurophysiology, and electrophysiology offer additional opportunities. The clinical areas of psychology, psychiatry as a consultation service. Prerequisite: medical student standing.

The Department of Radiation Oncology is dedicated to educating graduate students, radiation therapy technology students, and medical residents. It is associated with the Free Radical and Radiation Biology Program, which offers M.S. and Ph.D. degree programs and it provides radiation therapy technology training as part of the Radiation Sciences Program (Division of Associated Medical Sciences).

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The department provides a four-year program of physician residency training in radiation biology and medical therapy physics that includes clinical care and education. It offers specialized research projects and sponsors postdoctoral students in biology, physics and clinical disciplines by arrangement with the instructor or mentor, and it makes available a two- or four-week elective in radiation oncology to interested medical students.

**Courses**

**RADIATION ONCOLOGY**

**Head:** John Buatti  
**Professors:** John Buatti, Garry R. Buettner, Larry W. Oberley  
**Professor emeritus:** James W. Osborne  
**Associate professors:** John E. Bayouh, Frederick E. Domann Jr., Geraldine Jacobson, Douglas R. Spitz  
**Associate professor emeritus:** J. Fred Doornbos  
**Adjunct associate professor:** Krzysztof Renzka  
**Visiting associate professors:** A. Curtis Hais, James McNab  
**Assistant professors:** Mark W. Dion, Kenneth Dornfeld, Prabhat Goswami, Joseph Modrick, Mark C. Smith, Min Yao  
**Associate:** Edward Pennington  
**Web site:** http://www.uihealthcare.com/depts/med/radiationoncology/index.html

Radiation oncology is the discipline of medicine that specializes in the delivery of radiation treatments for cancer patients. It includes treatments with linear accelerators as well as isotopes and surgically-implanted sources on a temporary and permanent basis. The radiation oncologist also uses these methods for the treatment of some benign diseases, such as Graves’ ophthalmopathy and coronary artery disease.

The Department of Radiation Oncology is dedicated to educating graduate students, radiation therapy technology students, and medical residents. It is associated with the Free Radical and Radiation Biology Program, which offers M.S. and Ph.D. degree programs and it provides radiation therapy technology training as part of the Radiation Sciences Program (Division of Associated Medical Sciences).

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**Courses**

116:202 Radiation Oncology 4 s.h.

Integration of clinical oncology, physics, and cancer biology; clinical work with faculty mentors; experience in clinical evaluation, technical physics, biological application.

**RADIATION SCIENCES**

**Undergraduate degree:** B.S. in Radiation Sciences  
**Web site:** http://www.radiology.uiowa.edu/BSRS

The Radiation Sciences Program is one of five academic units in the Division of Associated Medical Sciences. It is sponsored cooperatively by the College of Liberal Arts and Sciences, the Carver College of Medicine, and the University of Iowa Hospitals and Clinics. For detailed information on the division’s general academic policies, see “Division of Associated Medical Sciences” in the Catalog.

The Bachelor of Science in radiation sciences provides graduates with the knowledge they need to adapt to the increasing sophistication of the profession of radiation sciences and meet the multicredential/multicompetency demands of the profession.

Radiation sciences professionals work with physicians to gather accurate patient information for diagnosis, treatment, and/or research of disease and injury. The radiation sciences professional must possess knowledge, skill, and mature judgment in order to operate complex equipment safely and efficiently and to produce quality images using multiple sources of radiation energy while delivering quality patient care during procedures.

**Bachelor of Science**

The B.S. degree requires a minimum of 124 s.h. of credit. Radiation sciences students complete specific components of the College of Liberal Arts and Sciences General Education Program, a professional radiography program, a second specialty (modality), and advanced course work. The second modality must be completed at the Carver College of Medicine. All radiation sciences students must meet residency and g.p.a. requirements; see “General Academic Policies” in the Division of Associated Medical Sciences section of the Catalog.

Students who complete the entire program at Iowa enroll for the first year in the College of Liberal Arts and Sciences as pre-radiation science majors to complete the General Education Program. During the fall semester of the first year, students apply to the University of Iowa Hospitals and Clinics Radiologic Technology (RT) Program. The program has a selective admissions process. Accepted students enroll for the second and third years in the professional RT program as nondegree students. Finally, students must apply to and be accepted for limited enrollment in a modality program; be admitted to the Carver
College of Medicine Bachelor of Science program in radiation sciences; and complete the advanced course requirements.

Certified radiographers who hold national certification from the American Registry of Radiologic Technologists, or student radiographers intending to take the national certification exam, must be admitted to the Carver College of Medicine Bachelor of Science program in radiation sciences; and complete the required University courses and a modality program. Admission to the radiation sciences major does not guarantee admission to a modality program. Modality programs have a selective admission process. Applicants must meet semester hour, grade-point average, and residency requirements.

The program plan is as follows.

**GENERAL EDUCATION COURSES**

- **Rhetoric**
  Students take 010:001 and 010:002 Rhetoric I-II (8 s.h.) or 010:003 Accelerated Rhetoric (4 s.h.).

- **Natural Sciences**
  One of these sequences:
  - 004:007-004:008 General Chemistry I-II (6 s.h.)
  - 004:011-004:012 Principles of Chemistry I-II (8 s.h.)

- **Social Sciences**
  031:001 Elementary Psychology (3 s.h.)

- **Quantitative or Formal Reasoning**
  22M:015 Mathematics for the Biological Sciences (4 s.h.)

- **Distributed Education**
  One course in two of these areas: social sciences (except psychology), humanities, cultural diversity, and historical perspectives (6 s.h.)

Contact the College of Liberal Arts and Sciences for information about the General Education Program.

**RADIOLOGIC TECHNOLOGY PROGRAM**

Students must complete a program in radiologic technology and pass the American Registry of Radiologic Technologists (AART) national certification exam. Students may apply to the professional program sponsored by the University of Iowa Hospitals and Clinics. Each program offers modality-specific didactic and supervised clinical education courses. Program duration varies. Graduates of the modality programs are eligible to take certification exams.

- **Nuclear Medicine Technology** (074:101 and 074:105) includes classes in radiopharmacy, radiobiology, radioimmunology, radiation protection, patient care, medical terminology, instrumentation, computer applications, administration, and ethics; 12-month program (30 s.h.) that begins in August.

- **Radiation Therapy** (672:803) teaches theory and techniques of radiation therapy technology, with emphasis on competence in areas of oncology treatment planning, treatment delivery, dosimetry, and use of megalavge radiation-producing equipment to administer treatment; 12-month program (30 s.h.) that begins in August.

- **Diagnostic Medical Sonography** (673:804 and 673:805) focuses on principles and methods in using ultrasound and offers specialties in abdominal, pediatric, obstetric, and gynecologic imaging as well as interventional procedures and vascular technology; 18-month program (30-36 s.h.) that begins in August.

- **Magnetic Resonance Imaging** (674:806 and 674:807) offers intensive study and practice in magnetic resonance imaging, including computer technology, pathophysics, physics, advanced sectional anatomy, and instrumentation, nine-month program (24 s.h.) that begins in September and March.

- **Cardiovascular Intervention** (675:808 and 675:809) teaches about imaging equipment, pharmacology, sterile techniques, cardiac monitoring, vascular anatomy and physiology, cardiovascular intervention technology imaging procedures, therapeutic intervention techniques, and digital angiography; six-month program (15 s.h.) that begins in September and March.

- **Computed Tomography** (676:810 and 676:813) concentrates on sectional anatomy, single and multislice computed tomography (CT), electron beam CT, physiologic and 3-D imaging, CT simulation, physics and imaging, and procedures and pathology; six-month program (15 s.h.) that begins in September and March.

- **Quality Management/Picture Archival and Communication Systems** (678:816 and 678:817) includes courses in quality management, radiographic and mammographic quality control, research methods, federal regulations, PACS technology, networking and standards, PACS management, radiology department design and workflow, and QA for the digital department; advanced national recognition exam in Quality Management is recommended at completion; six-month program (15 s.h.) that begins in September and March.

**ADVANCED COURSES**

- 061:048 Introduction to Management (3 s.h.)
- 225:102 Introduction to Statistical Methods (3 s.h.)
- 074:191 Health Informatics I (offered only fall semesters) (3 s.h.)

**ELECTIVES**

Elective course work, to complete the required 124 s.h., should be planned in consultation with the adviser.

**Advising**

Pre-radiation science majors completing the General Education Program before admission to the Radiologic Technology program are advised at the University’s Academic Advising Center. After students are admitted to the Radiologic Technology Program, they are advised by the Radiologic Technology Program director.

Radiation sciences majors are advised by the Radiation Sciences Program personnel.

**Admission**

Students who intend to complete the entire program at Iowa must meet the admission requirements of the College of Liberal Arts and Sciences and apply to the college as pre-radiation sciences majors. For information on admission requirements, contact the University’s Office of Admissions. Applicants must be admitted to the Radiologic Technology Program before beginning the pre-radiation sciences major.

Admission to the Radiologic Technology Program is competitive; enrollment is limited to 25. Student selection begins in October and continues until the class is full. Students accepted into the program are admitted to the Carver College of Medicine on nondegree (special) student status and must meet specific program requirements (see the Radiation Sciences Program web site). A g.p.a. of 2.50 in general education courses is recommended.

Admission to the Carver College of Medicine’s radiation sciences major requires national certification in radiologic technology from the American Registry of Radiologic Technologists or eligibility to take the national exam, and a cumulative g.p.a. of at least 2.50.

Admission to second modality programs is competitive; enrollment is limited (see the Radiation Sciences Program web site). The application deadline for all programs is March 1. Admission to the radiation sciences major does not guarantee admission to a modality program. Cumulative grade-point averages of 2.50 are recommended. Applicants must hold national certification from the American Registry of Radiologic Technologists or be eligible to take the national certification exam. For information about admission to specific modality programs, see the web site or contact the individual modality program director.

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**RADIOLOGY**

Head: Laurie Fajardo

Clinical Education
See “Nuclear Medicine Technology,” “Radiation Sciences,” and “Division of Associated Medical Sciences” in the Catalog.

Courses

074:006 Clinical Radiology 2 s.h.
Two-week clerkship. Prerequisite: medical student standing.

074:100 Independent Study in the Radiologic Sciences arr.

074:101 Principles of Nuclear Medicine I 0, 6 s.h.
Didactic and laboratory work in radiopharmacy, patient care, radiation protection, math and statistics, radiation physics, anatomy and physiology, radiopharmacy and tracer techniques, medical technology, computer applications. Prerequisite: Nuclear medicine technology student standing.

074:102 Introductory Clinical Nuclear Medicine 0, 6 s.h.
Experience in preparing radiopharmaceuticals, performing routine nuclear imaging and in vitro procedures; work with clinical instructors. Prerequisite: Nuclear medicine technology student standing.

074:103 Principles of Nuclear Medicine II 0, 3 s.h.
Didactic and laboratory work in nuclear medicine instrumentation, radiology, professional ethics, administration and management, computer applications. Prerequisite: Nuclear medicine technology student standing.

074:104 Intermediate Clinical Nuclear Medicine 0, 9 s.h.
Progressive responsibility in radiopharmacy, nuclear and PET imaging, cardiac stress testing. Prerequisite: Nuclear medicine technology student standing.

074:105 Advanced Clinical Nuclear Medicine 0, 6 s.h.
Proficiency in performance, quality assurance of all radiopharmacy and nuclear medicine procedures; opportunities for independent study, research. Prerequisite: Nuclear medicine technology student standing.

074:101 Health Informatics 1 3 s.h.

074:102 Health Informatics II 3 s.h.

074:201 Advanced Clinical Radiology arr.
Prerequisite: medical student standing.

074:202 Introduction to Radiation Oncology 4 s.h.

074:203 Vascular and Interventional Radiology arr.
Prerequisite: medical student standing.

074:204 Advanced Clinical Nuclear Medicine arr.
Routine nuclear medicine studies, including myocardial perfusion, renal studies, lung scans, biliary imaging, PET imaging, opportunty for research project.

074:401 Community Radiology arr.
Prerequisite: medical student standing.

074:498 Radiology on Campus arr.
Prerequisite: medical student standing.

074:499 Radiology off Campus arr.
Prerequisite: medical student standing.

Surgery

Interim head: G. Patrick Kealey


Professor (clinical): Alfred R. Hansen (Emergency Medicine)

Adjunct clinical professor: Douglas B. Borner

Adjunct clinical professors emeriti: Lester R. Dragstedt III, Frederick D. Staab

Associate professors: Phyllis Chang, Joseph J. Cullen, James R. Howe, Anthony D. Sandler, W. John Sharp, Youmin W.

Associate professor emeriti: Wilbur L. Zike

Associate professors (clinical): Al S. Aly, John Lawrence

Associate professor (clinical) emeritus: Cornelius Doherty

Adjunct associate clinical professor: Philip R. Caropreso

Adjunct clinical associate professors emeriti: Luke C. Faber, Alfred J. Heriztiz, John K. MacGregor, Samuel D. Porter


Assistants: Beth A. Ballinger, Kent C. Choi, Jeffrey E. Everett, John P. Meahan, Dionne A. Skeete, Timothy L. Von Natta

Adjunct assistant professor: Zadeer Asgar

Clinical assistant professors: Donald E. Boyle, Robert J. Cak, Daniel F. Congreve, Joseph L. Lohmuller, William F. Nelms, Carl M.H. Peterson, Walter J. Riley, David H. Stubbs, Timothy A. Thomsen

Clinical assistant professor emeritus: Robert L. Kollmorgen

Adjunct clinical instructors: Michael S. Irish, Michael A. Phelps, Rick A. Sherman

Adjunct clinical associate: P. Sue Beckwith

Web site: http://www.surgery.uiowa.edu

Courses in surgery provide a unique combination of experience oriented toward patient care, with basic surgical research designed to promote student awareness of surgery's place among the physician's skills. Surgery courses are available only to medical students and qualified students in associated health sciences.

Students of surgery develop awareness of surgical therapy's place in the treatment of disease. Emphasis is placed on basic emergency techniques, trauma, oncology, burns, gastrointestinal and biliary tract disease, endocrine disease, transplantation, plastic surgery and reconstruction, peripheral vascular surgery, thoracic and cardiovascular surgery, and neurosurgery.

The majority of surgery courses involve patient-centered discussions and practical exercises interwoven with operating room experience. Lectures and conferences are scheduled regularly on specific topics.

Independent study courses in selected surgery topics and clinical experiences are available to fourth-year students by arrangement with the faculty.

Faculty

Special faculty strengths are centered in pathophysiology and problems of severe burns, organ transplantation, surgical control of morbid obesity, inflammatory bowel disease, biliary tract disease, pediatric surgery, cardiothoracic surgery, and plastic surgery.

Facilities

Abundant patient contact provides education in a wide variety of surgical diseases. The Department of Surgery provides training in the only burn unit in Iowa approved by the American College of Surgeons and in the Level I Trauma Center at University of Iowa Hospitals and Clinics.

Laboratories provide equipment, space, and technical expertise to support teaching and a wide spectrum of clinical and scientific research. Projects are available in gastrointestinal surgery, surgical microbiology, peripheral vascular surgery, transplantation, wound healing, organ preservation, cardiovascular surgery, pediatric surgery, and surgical oncology.

Courses

075:005 Clinical Surgery 6 s.h.
Experience as active member of surgical team; work on wards, in clinics and operating room; assistance in elective and emergency care.

075:161 Instrumentation in Perfusion Technology 3 s.h.
Extracorporeal circuits, filters, pressure sensors, thermometers, cardiac output computers, fluid dynamics, intra-aortic balloon pumps, blood gas analyzers. Prerequisites: courses in biochemistry and physiology, and perfusion technology student standing.

075:162 Pathophysiology of Perfusion Technology 5 s.h.
Hemostasis, and base physiology, gas transfer, heart anatomy, heart embryology, congenital cardiac defects. Prerequisites: courses in biochemistry and physiology, and perfusion technology student standing.

075:163 Clinical Experience I 2 s.h.
Perfusion in operating room: patient workup, observation, and reporting on extracorporeal setup, surgical procedure. Prerequisites: courses in biochemistry and physiology, and perfusion technology student standing.

075:164 Clinical Experience II 3 s.h.

075:165 Clinical Experience III arr.
Continuation of 075:164; management of cardiopulmonary bypass system. Prerequisites: 071:130, 075:164, 075:170, and 075:171.

075:166 Clinical Experience IV arr.
Continuation of 075:165; emphasis on supply maintenance, perfusion departmental management. Prerequisite: 075:165.

075:167 Perfusion Seminar arr.
Ethics in perfusion. Prerequisite: perfusion technology student standing.

075:168 Research in Perfusion From topic selection to manuscript. Prerequisite: perfusion technology student standing.

075:169 Clinical Experience V arr.
Continuation of 075:166. Prerequisite: 075:166.

075:170 Principle and Practice of Perfusion Technology 6 s.h.

075:171 Devices in Perfusion Technology 3 s.h.
Urology

Head: Richard D. Williams


Professor emeritus: Charles E. Hawtrey

Associate professors: Christopher S. Cooper, Michael A. O’Donnell

Clinical associate professor: Victoria J. Sharp

Assistant professors: J. Christopher Austin, Thomas S. Griffin, Radmuth R. Konety


Urology encompasses the subspecialty areas of urologic nephrology, oncology, and endocrinology; male reproductive physiology; erectile dysfunction; neurourolology; pediatric urology; urinary tract stone and infection, including endourology; laparoscopic urology; diagnostic urology, and urinary tract obstruction.

The Department of Urology offers instruction in all of these areas at both the undergraduate and graduate levels and provides continuing education for the delivery of urologic care.

Medical Student Training

In the first year of the M.D. program, the department cooperates with several University of Iowa basic science departments in demonstrating the relationship between urology and the basic sciences. The Departments of Microbiology and Urology collaborate in teaching and research in immunology of genitourinary cancers and renal transplantation.

During second semester of the M.D. program’s second year, the department participates in O50:165 Foundations of Clinical Practice IV, presenting illustrative lectures and demonstrations related to the diagnosis and treatment of diseases of the genitourinary tract.

In the third and fourth years of the M.D. program, the department offers courses that provide experience in all areas of urology. The required third-year clerkship covers the fundamentals of these areas through exposure to outpatient clinics and inpatient units at University Hospitals and Clinics and the Veterans Affairs Medical Center as well as daily interactive teaching seminars. The fourth year offers advanced elective courses of intensive study in any of the urologic subspecialties.

Continuing Education

The department offers continuing education activities throughout the year for urologic and family practitioners. These activities are conducted by the senior staff, whose interests include pediatric urology, reproductive physiology, urologic oncology, urinary tract stone (including endourology/laparoscopy), and prostatic diseases.

Research

The department has earned international recognition for its studies of prostatic diseases. The urological laboratories conduct research and offer instruction in experimental oncology, cellular immunology, and infertility.

Courses

079:115 Urological Oncology (arr)
Experience in diagnosis, management of genitourinary neoplasms; participation in oncology protocols; may include collaboration on a publication.

079:119 Urodynamics (4 s.h.)
Clinical experience in voiding dysfunction, incontinence, urodynamics; full participation in all patient evaluations, urodynamics laboratories and activities.

079:999 Urology off Campus (arr)
Individually arranged by students with departmental approval.

Course Descriptions

075:216 Subinternship in General Surgery (4 s.h.)
Responsibility for patient care on wards, in operating rooms on a surgical service. Prerequisite: 075:005.

075:218 Veterans Administration Medical Center Surgical Intensive Care (arr)
Experience assessing and managing seriously or critically ill patients from general surgery; full range of subspecialties. Prerequisite: 075:005.

075:223 Subinternship in Burn Therapy (arr)
Experience as member of burn team on ward, in operating room, resuscitation with fluid and electrolytes, nutritional support, wound healing, rehabilitation. Prerequisite: 075:005.

075:224 Subinternship in Pediatric Surgery (arr)
Clinical experience in ward, operating room, outpatient clinic; surgical, pediatric conferences. Prerequisite: 075:005.

075:225 Subinternship in Transplantation Surgery (arr)
Experience on renal transplant team; exposure to coordinated efforts of other medical disciplines (e.g., internal medicine, urology) in daily rounds, conferences. Prerequisite: 075:005.

075:226 Subinternship in Plastic Surgery (arr)
Experience with problems in plastic and reconstructive surgery. Prerequisite: 075:005.

075:229 Research Surgery (arr)
Project under faculty member. Prerequisites: 075:005 and consent of instructor.

075:230 Subinternship in Vascular Surgery (arr)
Diagnosis, treatment of peripheral vascular disease; noninvasive diagnosis of arterial, venous problems; vascular problems in outpatient clinic, inpatient service; time in operating room, rounds with residents, conferences. Prerequisite: 075:005.

075:231 Research in Vascular Surgery (arr)
Clinical- or laboratory-oriented project. Prerequisites: 075:005 and consent of instructor.

075:232 Subinternship in Cardiothoracic Surgery (arr)
Concentration on cardiac or thoracic surgery; conferences, internship requirements, research. Prerequisite: 075:005.

075:233 Research in Cardiothoracic Surgery (arr)
Sub- or long-term project; may involve clinical material or laboratory research; completion of publishable manuscript. Prerequisites: 075:005 and consent of instructor.

075:235 Subinternship in General Surgery, Iowa Methodist Medical Center (4 s.h.)
Care of general surgery patients in private hospital setting. Prerequisites: 075:005 and consent of instructor.

075:236 Subinternship in Cardiothoracic Surgery (4 s.h.)
Subinternship on trauma service team; evaluation and management of critically ill patients in the emergency room, operating room, intensive care unit. Prerequisite: fourth-year medical student standing.

075:237 Subinternship in General Surgery, Davenport (4 s.h.)
Participation in diagnosis and management of general surgical patients under supervision of attending surgeons from Davenport Surgical Group, Genesis Medical Center. Prerequisites: 075:005 and senior medical student standing.

075:999 Surgery off Campus (arr)
Prerequisites: 075:005 and consent of instructor.

079:104 Clinical Urology (2 s.h.)
Work in urology unit, clinic; responsibility for patient care, working with residents.

079:108 Advanced Clerkship in Urology (4 s.h.)
Experience asintegral member of urologic staff, junior resident level.

079:109 Advanced Clerkship in Pediatric Urology (4 s.h.)
Experience in evaluation and pre-, post-, and intraoperative management of pediatric patients.

079:110 Individual Study and Research (arr)
Preclinical or clinical project; may include research presentation, collaboration on a publication.
Dean: Melanie C. Dreher
Executive associate dean: M. Patricia Donahue
Associate dean, research and scholarship: Toni Tripp-Reimer
Chair, adult and gerontology study: Keela Herr
Chair, systems and practice: Rita Frantz
Chair, parent, child, and family study: Martha Craft-Rosenberg
Professors: Kathleen Buckwalter, Gloria Bulechek, Martha Craft-Rosenberg, Connie Delaney, M. Patricia Donahue, Melanie C. Dreher, Rita Frantz, Keela Herr, Diane Huber, Toni Tripp-Reimer, Janet Williams
Professors emeritae: Myrtle Aydelotte, Joanne McCloskey Dochterman, Geraldene Felton, Marion Johnson, Meridean L. Maasi, Rosemary McKeighen, Hope Solomon, Barbara Thomas
Clinical professor: Geri Hall
Associate professors: Mary Kathleen Clark, Toni Clow, Perle Slavik Cowen, Ken Culp, Joann Eiland, Michele Elison, Linda Everett, Kathleen Hanson, Leslie Marshall, Anne Marie McCarthy, Paula Mobily, Sue Moorhead, Ann Rhodes, Janet Specht, Elizabeth Swanson
Associate professors emeritae: Janice Ann Denehy, Mildred Freel, Rose Marie Friedtrich, Orpha Glock, Laura Hart, Jean Lakin, Marjorie Lyford, Eleanor McClelland, Anna E. Overland, Sandra Powell, Etta H. Rasmussen, Jean Reese, Kay Weiler
Clinical associate professors: Patricia Clinton, Michelle Robnett, Kern Rupe, Deborah Schoenfelder, Edward S. Thompson
Assistant professors: Howard K. Butcher, Phyllis Cullen, Sue Gardner, Lisa Kelley, Sonja Lively, Rene Martin, Beverly Saboe, Deborah Schutte, Janette Taylor
Assistant professors emeritae: Carolyn Crowell, Merle Heick, Louise Kruse, Frances Midle, Lavonne Ruther, Mary Stewart-Dedmon, Pamela Willard
Clinical assistant professors: Pamela Ballard, Mary Berg, Teresa Bosee, Veronica Brightton, Karen Griffith, Todd Ingram, Teresa Judge-Ellis, Jean King, Anita Sineman, Connie Trowbridge, Jill Valde
Clinical instructors: Susan Lehmann, Nicolett Martorella
Lecturers: Judith Collins, Sheryl Miller Thomas, Patricia Nelson, Kelly Smith, Karin Zuehls
Undergraduate degree: B.S.N.
Postbaccalaureate degree: M.N.H.P.
Graduate degrees: M.S.N., Ph.D. in Nursing
Graduate nondegree programs: certificate in advanced practice nursing, health informatics, nursing informatics, nursing service administration
Web site: http://www.nursing.uiowa.edu
The College of Nursing is an integral part of the University of Iowa Health Science Campus, sharing in and contributing to teaching, research, and patient care resources that have earned international recognition. The University health center provides an unusually fine setting for nursing preparation because the educational and clinical resources that are needed to educate nurses are available on or near the campus. Faculty and students participate fully in University life and contribute their time, interest, and abilities to the many general and special activities of a major research university.

The college’s baccalaureate and master’s degree programs are accredited by the Commission on Collegiate Nursing Education (CCNE), an autonomous accrediting arm of the American Association of Colleges of Nursing (AACN). The baccalaureate and master’s programs are also approved by the Iowa Board of Nursing. The anesthesia nursing program is accredited by the Council on Accreditation of Nurse Anesthesia Educational Programs. Graduates of the baccalaureate and the professional Master’s in Nursing and Health Care Practice programs qualify to take the licensure examination required for practice as registered nurses. Graduates of advanced practice majors in the graduate program are eligible to take certification examinations and apply for ARNP licensure.

Undergraduate Program

The Bachelor of Science in Nursing (B.S.N.) at the University of Iowa is designed to provide preparation for careers in the hospital care of patients and in community agencies such as public health services, schools, homes, and industries. It also serves as the base for graduate study in nursing.

In addition to the advantages of combining general education with specialized career preparation, a college or university program offers the advantages of full participation in the social, cultural, and recreational activities of a highly diverse campus community. In nursing, no less than in other pursuits, a college or university background enables people not only to be prepared for a career but to be able to achieve a life of thought and action informed by knowledge, introspection, and contemplation.

The nursing major provides a basis for nurses’ roles in wellness and health promotion, in acute care, and in long-term care for chronic illness. The professional nurse provides care to individuals, families, groups, and communities along a continuum of health, illness, and disability in any sector of the health care system. In addition to providing care, the nurse serves as a coordinator of health care by organizing and facilitating the delivery of comprehensive, efficient, and appropriate service to individuals, families, groups, and communities. The nurse demonstrates the ability to conceptualize the total continuing health needs of the patient, including legal and ethical aspects of care. The University of Iowa program’s goal is to produce graduates who are competent, committed, creative, and compassionate.

The 128 s.h. course of study consists of 63 s.h. of College of Liberal Arts and Sciences General Education Program courses and supportive prenursing courses, and 65 s.h. of course work in the nursing major. Students can expect to complete the program in four or four-and-a-half academic years.

Each B.S.N. student is assigned a College of Nursing faculty member for career planning and professional development.

Nursing courses are based on the concepts of health, deviations from health, and nursing intervention, and are presented at progressive levels of complexity from the sophomore through the senior year. The curriculum reflects the current trend in health care delivery toward emphasis on nursing as a service provided both inside and outside hospitals. Students have clinical experiences that are selected from more than 60 agencies in the state.

Approaches to the College of Nursing

Students may complete their entire program at Iowa, enrolling during their first year or year-and-a-half in the College of Liberal Arts and Sciences. Or they may transfer from an institution that offers a two-year sequence of specific courses approved by The University of Iowa College of Nursing.

Highly qualified students may be admitted early to the College of Nursing if they have an ACT composite score of 29 or higher or SAT scores of 1250 or higher, graduate in the top 10 percent of their high school class, and have no high school unit deficiencies. For more information, contact the college.

Cooperating state institutions and independent colleges that participate in the transfer plan include Iowa State University; the University of Northern Iowa; Upper Iowa University; and Briar Cliff, Ottumwa, and Marshalltown. Students have clinical experiences that are selected from more than 60 agencies in the state.

The honors program enables students to explore subject matter based on individual interests, needs, and goals. It provides opportunities for self-initiative, research experience, and intellectual and personal development, and challenges students to grow and excel. Students who fulfill the requirements of the program graduate with honors in nursing.

Registered Nurses

The R.N.-B.S.N. program is designed to offer registered nurses the opportunity to build on their nursing knowledge and experience as they extend their educational goals. The nursing major courses focus on professional aspects of nursing, nursing process and health assessment, community/public health, leadership and management, research, and nursing issues. Each R.N.-B.S.N. student is assigned to a College of Nursing faculty member for academic advising and curriculum planning.

The College of Nursing participates as a receiving institution in the Iowa Statewide Articulation Plan for Nursing Education: R.N. to baccalaureate.

Students may transfer course work completed at other colleges and universities to satisfy prerequisites and degree requirements other than those for the nursing major. Once prerequisites are met, students may complete the R.N.-B.S.N. nursing major in one calendar year in a sequence.

Aging Studies

Students in the College of Nursing may participate in the Aging Studies Program, which is designed to provide undergraduate students a multidisciplinary approach to gerontology. Students plan their course of study with their academic adviser in close cooperation with the Aging Studies Program coordinator. Nursing students who successfully complete 18 s.h. of acceptable course work in aging studies are awarded a certificate of completion by the University. Nursing students also have the option of completing a minor in aging studies by taking 15 s.h. outside of the major in courses approved by the program. See “Aging Studies Program” in the College of Liberal Arts and Sciences section of the Catalog.

Honors

The University of Iowa College of Nursing Baccalaureate Honors Program provides seminars and independent study experience for qualified students. In order to pursue honors studies in nursing, students must be members of the University Honors Program, which requires them to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University Honors Program for more information). They also must have completed the first clinical nursing course and must maintain an overall cumulative g.p.a. of at least 3.33 and a nursing major g.p.a. of at least 3.50.

The honors program enables students to explore subject matter based on individual interests, needs, and goals. It provides opportunities for self-initiative, research experience, and intellectual and personal development, and challenges students to grow and excel. Students who fulfill the requirements of the program graduate with honors in nursing.

Study Abroad

The College of Nursing advocates study abroad as a rich educational experience for students. Nursing students have the opportunity to encounter another culture directly through the college’s cultural nursing experiences abroad. The intent of these regular programs is to introduce students to health care systems in other countries. In addition, students learn about health conditions and circumstances not widely prevalent in the United States (e.g., diphtheria, nutritional deficiencies). For more information, contact the College of Nursing’s Office of Student Services.
that begins each summer and includes three clinical and five nonclinical nursing courses. The program is offered via distance education, through technologies including web-based learning and the Iowa Communications Network. Registered nurses planning to enter the baccalaureate program should obtain special information and advising from the R.N.-B.S.N. Progression Program Office in the College of Nursing.

Faculty Advisers
Advisers from the University’s Academic Advising Center advise pre-nursing students. After admission to the College of Nursing, each student is assigned a College of Nursing faculty adviser.

Student Organizations
College of Nursing undergraduate students are eligible for membership in the state and national associations of nursing students, but they also have their own organization, The University of Iowa Association of Nursing Students (UIANS), which provides opportunities for professional growth and development in nursing. UIANS representatives are members of The University of Iowa Student Government (UISG), and there is a UIANS representative on the Academic Council of the College of Nursing.

College of Nursing graduate students also have an organization, the Association of Graduate Nursing Students (AGNS). AGNS provides opportunities for professional growth, sharing of research, and representation on various college and University committees.

Expenses
Students pay the general University fees throughout the program. They also must purchase uniforms, white shoes, a stethoscope, a watch with a full-sweep second hand, and supplies and materials for required nursing courses. Students arrange for their own health screening requirements, health insurance, professional liability insurance, and transportation once they are enrolled in clinical nursing courses.

Mandatory Health Insurance
All students in the College of Nursing must show annual verification that they have obtained and currently hold health insurance sufficient to satisfy the following minimal standards of coverage (or an equivalent alternative care plan):
- $250,000 lifetime benefit;
- coverage for hospitalization, including coverage for room and board, physician visits, surgeon services, X-ray, and lab services;
- inpatient deductible under an individual policy not exceeding $500 per admission and a 20 percent copayment/coinsurance requirement;
- coverage for medically necessary care, including both physician services for treatment of emergencies, illness, accident, injury, X-ray, and lab services.

Professional Liability Insurance
All students in the College of Nursing are required to carry professional liability insurance throughout the duration of their program. Agencies in which students are involved in clinical practicums require that students have insurance coverage. Entering students in the College of Nursing are provided information about this requirement and must show verification that they have purchased and currently hold professional liability insurance with a minimum coverage of $1 million per single occurrence.

Financial Aid
In addition to general assistance available to University students, there are assistance programs specifically for nursing students. Information about financial assistance is available from the University’s Office of Student Financial Aid.

Admission
To apply for admission to the B.S.N. program in nursing, each student must qualify for admission to The University of Iowa and meet these requirements:

- completion of all prerequisites for admission to the College of Nursing, or current enrollment in any remaining prerequisites (students admitted beginning spring 2005, a g.p.a. of at least 2.00 is required in all prerequisite courses);
- a g.p.a. of at least 2.50 (for students admitted beginning spring 2005, a g.p.a. of at least 2.70 is recommended).

Applicants whose first language is not English are required to present a score of at least 550 on the Test of English as a Foreign Language (TOEFL). Registered nurses educated outside of the United States are required to present verification of having passed the CGFNS examination and specified Excelcorr baccalaureate nursing examinations.

High School Background
The College of Nursing strongly recommends four years of English, three years of social science, three years of mathematics, two years of one foreign language, and one year each of biology and chemistry, and one-half year of physics, plus other college preparatory courses selected with the help of the high school counselor.

Preclinical Background
In addition to the biological and behavioral science courses required for admission to the college, students must satisfy the following requirements before beginning clinical course work.

Rhetoric: 8 s.h. (may be satisfied by testing for advanced standing); a student who has earned 6 s.h. of credit in English composition may complete the speech component after admission.

Mathematics: three years of high school mathematics, or a score greater than or equal to 26 on the mathematics battery of the ACT, or completion of a college course in mathematics comparable to or more advanced than Intermediate Algebra (22M-002).

Physics: one-half year of high school physics or equivalent.

Other course work: animal biology, inorganic chemistry I, microbiology, human anatomy, psychology, and human development and behavior.

American College Tests
All entering first-year and undergraduate transfer students who present fewer than 24 s.h. when they apply for admission to The University of Iowa must complete the American College Test (ACT) or the Scholastic Aptitude Test (SAT). For information on the ACT, write to the American College Testing Program, Box 451, Iowa City, Iowa 52243.

Core Performance Standards
Applicants to the College of Nursing are expected to be capable of completing the entire nursing curriculum and of earning a Bachelor of Science in Nursing. The nursing curriculum requires demonstrated proficiency in a variety of cognitive, problem-solving, manipulative, communicative, and interpersonal skills. Therefore, College of Nursing students must meet the following performance standards.

- Possess and use critical thinking skills sufficient for clinical judgment (e.g., identify cause-effect relationships in clinical situations, develop nursing care plans)
- Demonstrate interpersonal abilities sufficient for interaction with individuals, families, and groups from a variety of social, emotional, cultural, and intellectual backgrounds (e.g., establish rapport with patients, clients, colleagues)
- Possess and use communication skills sufficient for interacting with others (e.g., explain treatment procedures, initiate health teaching, observe patient/client responses, document and interpret nursing actions and patient/client responses)
- Administer cardiopulmonary procedures and other clinical procedures necessary for nursing care; calibrate and use equipment, position patients and clients
- Possess the tactile abilities (with or without an assistive device) sufficient for performing physical assessment (e.g., perform palpation functions of physical exam and those related to nursing interventions)
- Possess the cognitive, problem-solving, manipulative, communicative, and interpersonal skills.

The examples above are not all-inclusive. Applicants who may not meet these standards are encouraged to contact the associate dean for academic affairs for a personal interview.

Selection Factors
The college’s admission committee recommends to the dean the applicants who appear to be best qualified. Fulfillment of minimum admission
requirements does not guarantee admission to the College of Nursing. The committee may require personal interviews. A physical examination report and specific health screening requirements must be on file at Student Health Service 10 days before the class opens for the first clinical nursing course.

**Application Deadlines**
- Fall semester: March 1
- Summer session (for R.N. students only): January 15
- Spring semester: October 1

**Postbaccalaureate Program**

**Master's in Nursing and Health Care Practice**

The program leading to the professional Master's in Nursing and Health Care Practice (M.N.H.P.) prepares individuals to enter the nursing profession. The postbaccalaureate degree is not an academic master's degree with a research focus; rather, it provides an education in the clinical skills and knowledge necessary for entry into the nursing profession. Graduates of the program are prepared to join the nursing workforce in entry-level positions or to pursue the M.S.N. or a Ph.D. in nursing.

The M.N.H.P. program is highly structured, full-time plan of study that is completed in four consecutive semesters, including summer. Students are strongly advised not to work while enrolled in the program.

The application deadline for the M.N.H.P. program is June 1.

**Graduate Programs**

**Master of Science in Nursing**

The Master of Science in Nursing curriculum is designed to build on general and professional baccalaureate study. Graduation from an accredited baccalaureate degree program is one of the admission requirements. Options are available for registered nurse applicants with a non-accredited B.S.N., a non-nursing B.A. or B.S., or a B.S.N. from a foreign country.

The curriculum consists of a core component and areas of specialization enhanced by supporting coursework in the College of Nursing or in related disciplines. The number of semester hours required for graduation ranges from 33 s.h. for the basic M.S.N. to 52 s.h., depending on the concentration area.

Students may take two to three supporting courses related to the nursing specialization in the social, behavioral, or biological sciences or in business administration, law, or health management and policy.

**Degree Requirements**

The curriculum ordinarily requires four semesters of full-time study for completion. Part-time study is available for some specializations. The M.B.A./M.S.N. and anesthesia nursing programs require a minimum of six semesters of full-time study. Students must maintain a g.p.a. of at least 2.75 and must successfully complete a master's thesis, master's project, or master's portfolio.

The master's curriculum consists of the following components.

**ADVANCED NURSING CORE**

Core courses are taken by all students in the program. The core consists of 12 s.h. of course work, including leadership in nursing (3 s.h.), research application (3 s.h.), health policy and economics (3 s.h.), and nursing informatics in nursing and health care (3 s.h.).

**NURSING SPECIALIZATION**

Specialization allows students to build a specialized area of knowledge and practice that extends beyond the advanced nursing core. Clinical specialization may be in any of the following options: adult and gerontological nursing, child health nursing, genetics nursing, community health nursing, occupational health nursing, psychiatric/mental health nursing, anesthesia nursing, pediatric nurse practitioner, adult/gerontological nurse practitioner, and family nurse practitioner. Nonclinical options include nursing administration, the M.B.A./M.S.N. joint degree program, the M.S.N./M.P.H. joint degree program, and informatics. Some options require special acceptance procedures. Students with unique career goals have the option of modifying their plans of study under the direction of their academic advisers.

Students in the practitioner programs take an advanced clinical core that includes advanced physiology, pharmacology, health assessment, health promotion, and a professional role course. Students in other clinical options may be required to take one or more of these courses. Some of the clinical core courses are open to other students. Students in a clinical or management specialization develop their knowledge and practice through course work and fieldwork.

**SUPPORTING COURSES**

Available semester hours for supporting courses vary with each specialization area. Supporting course work can be selected from various academic departments at the University and should relate to the student's interest and specialization area.

Some areas of specialization require some course work to be taken in other departments. For example, students in the community health nursing specialization must complete an upper-division or equivalent course in epidemiology and a management course; students in the management option select supporting courses from business, health management and policy, or allied study areas. Students select supporting course work in collaboration with their faculty adviser.

**THESIS/PROJECT/PORTFOLIO**

All master's students at the University must take a final examination. Students in the College of Nursing satisfy this requirement by completing a thesis, a master's project, or a portfolio. Students, with their advisers, select the option that best serves their individual career objectives.

The thesis is a systematic inquiry into a nursing problem. Methodologies may include historical research, case studies, analytical literature review, surveys, or experimental studies that meet the requirements of the Graduate College. Students earn a total of 5 s.h. for the thesis.

The master's project is an in-depth synthesis and analysis of a chosen topic in nursing. The 15- to 20-page paper of publishable quality may not replicate previous course assignments. Students earn 2 s.h. for the master's project.

The master's clinical portfolio is a written description of the clinical experiences that contributed to the development of the advanced practice role and a self-assessment of clinical competencies and areas for future growth. Students in the nurse practitioner, nurse anesthesia, and clinical specialty tracks are eligible to complete the clinical portfolio. The professional portfolio is a written description of practicum experiences and competencies. Students in the nonclinical tracks are eligible to complete the professional portfolio. Students earn no semester hours for the portfolio.

**Admission**

Students seek admission to the master's program in nursing through direct application to The University of Iowa Graduate College.

Minimum requirements for admission to the Graduate College include a completed application; official transcripts from other institutions attended; Graduate Record Examination (GRE) General Test scores; a passing score on the Test of English as a Foreign Language (TOEFL), when appropriate; and a g.p.a. of at least 3.00 for regular admission.

In addition to the general requirements for admission to the Graduate College, the College of Nursing requires that applicants must provide or have fulfilled the following:

- a bachelor's degree with a major in nursing from an accredited program; options are available for registered nurse applicants with a non-accredited B.S.N., a non-nursing B.A. or B.S., or a B.S.N. from a foreign country;
- the legal requirements for the practice of nursing in Iowa;
- current written recommendations from three persons familiar with the applicant's competence in the practice of nursing and potential for leadership and scholarship (forms required);
- completion of an upper-division nursing research course in the undergraduate program; and
- successful completion of an upper-level (or equivalent) statistics course within five years of registering for 096:206 Nursing Science and Inquiry.

Inquiry.

registering for 096:206 Nursing Science and
Students whose first language is not English must earn a score of at least 213 on the Test of English as a Foreign Language (TOEFL) computer-based test, or 550 on the paper-based test. Applications for admission to the master's degree program are reviewed twice a year. For review, the applicant's file must be complete, with all relevant materials submitted. Application deadlines are February 1 for fall admission and October 1 for spring admission. Initial course enrollment may begin any term. Practitioner programs and the anesthesia program admit students for initial enrollment in fall semester only. The anesthesia program's application deadline is October 1.

All Graduate College regulations pertaining to academic standing, probation, and dismissal are applicable to graduate students in nursing. Transfer credits applicable to the master's degree program are limited and must be approved by the director of the graduate program in nursing and by the student's advisor. Course work taken 10 years or more before the final examination must be updated, according to University policy.

### Joint M.B.A./M.S.N. Program

The Joint M.B.A./M.S.N. program is designed for students with previous clinical and administrative experience. The joint program requires a total of 61 s.h. Applicants must be accepted for graduate study in both programs. For more information, contact the College of Nursing's Graduate Programs Office.

### Joint M.S.N./M.P.H. Program

The joint M.S.N./M.P.H. program is designed for students who want to pursue careers that include professional activities in nursing and public health. The program requires a total of 60 s.h. Applicants must be accepted for graduate study in both programs. Contact the College of Nursing Graduate Programs Office for more information.

### Nursing Home Administrator Licensure

The nursing home administrator program offers students an efficient option for completing requirements for licensure examination while obtaining a master's degree in nursing. Students may complete the requirements for licensure by supplementing study in adult and gerontology health nursing, adult/gerontology nurse practitioner, or nurse manager.

### Doctor of Philosophy

The Ph.D. in nursing program prepares scientists to conduct research in nursing, extend the knowledge base relevant to nursing, and contribute to the body of knowledge in the discipline of nursing. Study requires expertise in clinical nursing and competence in research that relates to the practice of nursing and the delivery of health care.

B.S.N. students who intend to pursue a Ph.D. in nursing may be eligible to enter the doctoral program directly, once they have completed the B.S.N. Contact the Graduate Programs Office for more information. The curriculum has five focal areas from which students choose: nursing in aging, nursing administration, nursing informatics, child and family nursing, and an individualized focus. Graduates of the program aspire to careers as researchers, college and university faculty members, consultants, and as leaders in the nursing profession, in health policy-making agencies, and in health care delivery systems.

### Degree Requirements

All candidates must take the following courses.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>096:340</td>
<td>Research Seminar in Nursing</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>096:341</td>
<td>Construction I-II</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>096:300</td>
<td>Classics in the Social Evolution of Modern Nursing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>096:310</td>
<td>Advanced Nursing Informatics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>096:320</td>
<td>Economics of Health Care and Nursing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>096:330</td>
<td>Nursing's Role in Health Care Policy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>096:490-491</td>
<td>Research Practicum</td>
<td>0 s.h.</td>
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</table>

In addition, candidates must take the seminars and practicums appropriate for their focus area.

### Aging Focus

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>096:410</td>
<td>Nursing Research of Biological Phenomena and Interventions for the Elderly</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>096:420</td>
<td>Geriatric Mental Health Research</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>096:430</td>
<td>Research in Sociocultural Phenomena and Interventions for the Elderly</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>096:440</td>
<td>Research Utilization Residency in Care of the Elderly</td>
<td>3 s.h.</td>
</tr>
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### Nursing Administration Focus

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>096:450</td>
<td>Research Seminar in Nursing Administration I: Organizational Systems Concepts</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>096:451</td>
<td>Research Seminar in Nursing Administration II: Health Care System Concepts</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>096:460</td>
<td>Innovations in Nursing Management</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>096:480</td>
<td>Residency in Nursing Service Administration</td>
<td>3 s.h.</td>
</tr>
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### Nursing Informatics Focus

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>096:462</td>
<td>Research in Nursing Informatics I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>096:463</td>
<td>Research in Nursing Informatics II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>096:465</td>
<td>Residency in Nursing Informatics</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

### Child and Family Nursing Focus

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>096:405</td>
<td>Family Nursing Research</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>096:445</td>
<td>Research Residency in Child and Family Nursing</td>
<td>3 s.h.</td>
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Two of these:

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>096:415</td>
<td>Genetic Nursing Research</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>096:425</td>
<td>Research in Sociocultural Perspectives for Family and Women's Health</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>096:435</td>
<td>Research in Cognitive and Behavioral Interventions for Children</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

### COMPREHENSIVE EXAM, DISSERTATION

All students must complete a written comprehensive examination. Candidates earn 12 s.h. for work on the dissertation by completing 096:497 Dissertation Research Seminar I: Scholarship Development (1 s.h.), 096:498 Dissertation Research Seminar II (0 s.h.), and 096:499 Dissertation Research (11 s.h.), which includes a dissertation prospectus, the dissertation, and an oral defense.

### Admission

Students applying to the Ph.D. program must provide or have fulfilled the following requirements:

- completion of an accredited basic nursing program;
- completion of a master's degree program;
- current R.N. licensure to practice nursing;
- GRE General Test, preferably within the past five years;
- a minimum of one graduate-level, 3 s.h. course in research and inferential statistics;
- a two- or three-page statement describing educational objectives and identifying a focal area for doctoral study;
- three recommendations from professionals in the field; and
- a current curriculum vitae.

One year of nursing experience is preferred. Students whose first language is not English must earn a score of at least 213 (computer-based test) or 550 (paper-based test) on the Test of English as a Foreign Language (TOEFL).

### Nursing Service Administration Certificate

This program provides ongoing education in administration for nurses who have a bachelor's degree but do not wish to pursue the M.S.N. Students in the 15 s.h. certificate program must hold a B.S.N. and have an R.N. license.

### Post-M.S.N. Certificate Programs

The post-master's degree certificate program in advanced practice nursing allows for advanced clinical training in four specialty tracks: pediatric nurse practitioner, adult/gerontology nurse practitioner, hospital nurse practitioner, and psychiatric mental health nurse practitioner.
practitioner, family nurse practitioner, and psychiatric/mental health nursing. Certificate requirements include advanced clinical core courses and a sequence of specialty courses. Formulation of a plan of study is done with advice and counsel of the student's adviser and/or the director of the graduate master's program. Successful completion of the specialty sequence qualifies a student to sit for professional certification examinations. Completion of the certificate program is noted on the student's transcript.

Nursing Informatics Certificate

A certificate in nursing informatics is available for graduate students. Course work for the certificate focuses on methods and technologies of information handling and knowledge building in nursing. Certificate students must earn 20 s.h. in courses that cover the development, support, and evaluation of applications, tools, processes, and structures used to manage data for patient care and administrative support.

Health Informatics Certificate

Graduate students may pursue a certificate in health informatics. The program of study requires a total of 20 s.h. earned in courses numbered 100 or above. There are two required core courses. Health Informatics I (096:283, 3 s.h.) is an interdisciplinary course intended primarily for graduate students, faculty, and health care clinicians. It explores decision-making processes and technological tools to support health care administration, management, and practice. Health Informatics II (096:289, 3 s.h.) is an interdisciplinary course focused on field projects related to one or more health informatics topics under the direction of established researchers/educators. It includes a seminar. Electives (9-14 s.h.) are selected from outside the student's major program of study. For example, a student working towards a nursing degree and the Certificate in Health Informatics can use only non-nursing electives for the certificate. Students must choose electives with the guidance of their academic/certification adviser. Students completing a thesis, project, or independent study in their major program of study may include this credit toward the Certificate in Health Informatics if the certificate adviser determines that the subject matter is pertinent.

Professional Improvement

Some registered nurses may wish to take University of Iowa course work to fulfill professional or personal improvement objectives. Such individuals may request admission to the professional improvement (P.I.) category. This admission status allows students to take some graduate courses at the University without commitment to a degree objective. Admission as a nursing professional improvement student requires a formal application, including submission of three current written recommendations and all academic transcripts. GRE General Test scores must be submitted to fulfill the University requirement before the end of first semester registration. Deadlines are July 15 for fall semester admission, December 1 for spring semester admission, and May 1 for summer session admission.

Since acceptance as a professional improvement student has no direct bearing on acceptance as a master's or doctoral candidate, professional improvement students are required to follow the application procedure described in the preceding section if they seek admission as master's or doctoral degree candidates. Only 6 s.h. or two required nursing core courses taken under the professional improvement status may be used to fulfill the M.S.N. requirements. Professional improvement students may not enroll in doctoral courses.

Continuing Education

Through continuing education, the college offers nonacademic, short-term programs for registered nurses. Continuing education units (CEUs) are awarded for each program on the basis of one unit per 10 clock hours of instruction. The College of Nursing is approved by the Iowa Board of Nursing as an approved provider, number 1, and is accredited by the American Nurses Association's (ANA) Board of Accreditation and the National Association of Pediatric Nurse Associates and Practitioners.

Facilities

The Nursing Building is centrally located on the University's main campus, in close proximity to the Colleges of Dentistry, Medicine, Pharmacy, and Public Health and The University of Iowa Hospitals and Clinics, Bowen Science Building, and the Hardin Library for the Health Sciences. Completed in 1971, the building consists of five floors with varied and specialized facilities. Administrative offices are located on the first floor. Faculty offices are located on every floor except the second, which is used entirely for classrooms and laboratories. The Learning Resource Services, which is located on ground level, includes a technology laboratory. There are additional classrooms throughout the building, and conference rooms, student lounges, and meeting rooms are conveniently located. Research and computer facilities in the building provide direct access to the University's computing facilities and to college-owned microcomputers.

Courses

Primary for Undergraduates

096:030 Human Development and Behavior 3 s.h.

Normal developmental transitions experienced by individuals and family systems throughout the lifespan, including physical, cognitive, and social-emotional development. Prerequisite: 031:001. Same as 153:030.

096:050 Perspectives on Health Care Systems 3 s.h.

Health care systems, delivery modes, resources, economics, contemporary problems and policies that influence health care; emphasis on the context of health care delivery. Prerequisite: facility with e-mail and World Wide Web.

096:051 Art and Science of Nursing 3 s.h.

Integrated view of theories from nursing, the arts, the sciences, historic, holistic, and global perspectives on creative and scientific processes and concepts that underlie and guide nursing practice.

096:083 Diversity and Oppression in Health Care 1-2 s.h.

Messages about oppressed minority groups, how these messages relate to health care.

096:100 Mental Health Services and Policy I 3 s.h.

Same as 174:140.

096:109 Leadership U 1-3 s.h.

Repeatable.

096:114 Human Pathophysiology: Organ Systems 3 s.h.

Normal and abnormal functioning of human cells, tissues, and organ systems over the lifespan; focus on cardiovascular, respiratory, renal, gastrointestinal, endocrine, and reproductive systems, and on processes of metabolism and homeostasis of the internal milieu. Prerequisites: approved courses in biology, inorganic chemistry, microbiology, and human anatomy; or consent of instructor.

096:115 Human Pathophysiology: Cellular/Neurology/Immunology 3 s.h.

Normal and abnormal functioning of human cells, tissues, and organ systems over the lifespan; focus on processes of communication, control, defense, and movement. Prerequisites: approved courses in biology, inorganic chemistry, microbiology, and human anatomy; or consent of instructor.

096:124 Pharmacotherapeutics in Nursing 3 s.h.

Basic principles of pharmacotherapeutics and pharmacologic interventions; focus on mechanisms of drug actions in patient treatment. Prerequisites: 096:114 and 096:115, or consent of instructor.

096:126 Communication for Health Professionals 2 s.h.

The communication process in health care settings; emphasis on theory-based strategies to improve communication with individuals, families, other health care professionals.

096:127 Health Assessment Across the Life Span 4 s.h.

Knowledge and skills health professionals need to perform holistic health assessments of individuals across the life span; emphasis on history taking, physical assessment skills, laboratory practices. Prerequisites: admission to the College of Nursing and courses in anatomy, human development and behavior, and animal biology.

096:134 Basic Concepts of Nursing Care 4 s.h.

Physiological and behavioral concepts, nursing interventions, and activities across settings and populations; based on nursing interventions classification taxonomy. First in a two-course sequence. Prerequisite nursing major. Pre or corequisites: 096:114 or 096:115, and 096:127.

096:135 Complex Concepts of Nursing Care 4 s.h.


096:136 Core Clinical Practicum 4 s.h.

Arise care of adult clients in the clinical setting; in-depth practicum experience applying basic and complex concepts of nursing care; focus on clinical decision making skills. Prerequisites: 096:126, 096:127, and 096:134. Corequisites: 096:135.

096:139 Parent-Child Nursing 3 s.h.


096:140 Parent-Child Nursing Practicum 3 s.h.


096:141 Gerontological Nursing 3 s.h.

Nurse's role in promoting, maintaining, and restoring the health of aging adults; nursing science applied to care of older adults in diverse settings. Prerequisite: 096:135. Pre or corequisite: 096:124.

096:142 Gerontological Nursing Practicum 3 s.h.

Nursing process applied to promote, maintain, and restore health of older adults; opportunities to provide nursing care to well
096:143 Research for Practicing Nurses 3 s.h.
Research process, its application to nursing practice for RN students; conceptual basis, methodology, data collection, data analysis, presentation and utilization of research. Prerequisites: 096:190 or consent of instructor; and an approved statistics course.

Primarily for Graduate Students
Courses offered only if minimum enrollments are maintained.

096:170 Introduction to Case Management 2-3 s.h.
Purpose and models of case management; role and work redesign for effective outcomes of care; efficient resource use; critical paths, care management.

096:200 Nursing Science and Inquiry 3 s.h.
Research design and analysis for examining, applying, and using nursing science. Prerequisites: 096:143 or equivalent, and an upper-level statistics course within past five years.

096:207 School Nursing Practice and Issues 3 s.h.
Issues in school nursing practice; roles and responsibilities of the school nurse, issues, management of common illnesses and conditions.

096:208 Leadership for Advanced Nursing Practice 3 s.h.
Roles and behaviors for leading others and influencing health care delivery.

096:209 Health Systems/Economics/Policy 3 s.h.
Global, economic, organizational, political, and technological contexts for advanced nursing practice.

096:210 Healthcare Financial Management 3 s.h.
Overview of health care finance and financial management; finance principles used by health services organizations. Prerequisite: graduate standing or consent of instructor.

096:213 Physiology for Advanced Clinical Practice 3 s.h.
Regulation of cellular, organ, and system function; regulation of internal milieu; functional interrelationships among body systems; cellular and body-wide mechanisms of self-defense; illustrative examples of pathological phenomena. Prerequisites: anatomy, physiology, microbiology, and patph physiology courses, or equivalents, or consent of instructor.

096:214 Advanced Health Assessment for Clinical Practice 3 s.h.
Knowledge and skills necessary for advanced health assessment of individuals and families across the life span. Prerequisite: graduate standing in nursing or consent of instructor.

096:215 Health Assessment Laboratory 1 s.h.
Advanced health assessment knowledge and skills applied in a laboratory setting; practice of health assessment skills, discussion of application of these skills with clients. Prerequisite: 096:214.

096:219 Primary Care: Infants, Children, and Adolescents 2-3 s.h.
096:220 Primary Care: Infants, Children, and Families 3 s.h.
Enhancement of clinical knowledge and skills for infant, child, and adolescent care; development and refinement of knowledge and skills in primary care delivery. Prerequisite: 096:219 or 096:280. Same as 070:201.

096:221 Primary Care: Pediatric Nurse Practitioner II 3 s.h.
In-depth practicum synthesizing clinical management and role enactment, opportunity for discussion and analysis of practice and role issues. Prerequisites: 096:220 and 096:285.

096:222 Health Promotion and Intervention for Primary Care 3 s.h.
Theorists of health promotion in primary care: levels of prevention; epidemiological principles and methods; specific interventions designed to maintain, promote, and optimize health across the lifespan. Prerequisite: graduate standing or consent of instructor.

096:223 Clinical Applications for Health Assessment and Health Promotion 3 s.h.
Advanced health assessment and promotion skills applied to planning, implementing, and evaluating interventions designed to maintain, promote, and optimize health across the lifespan. Prerequisite: graduate standing or consent of instructor. Pre- or corequisites: 096:214 and 096:222.

096:224 Pharmacotherapeutics for Advanced Nursing Practice 4 s.h.
Pharmacologic, pharmacokinetic, and pharmacodynamic principles essential for advanced clinical practice; classes of drugs frequently used in management of common clinical conditions; legal considerations in prescriptive authority. Prerequisite: 096:213 or consent of instructor.

096:225 Biopsychosocial Dimensions of Healthy Aging 3 s.h.
Biopsychosocial dimensions of healthy aging in individuals; healthy aging, including behavior and normal age-related physiological changes, psychosocial and cultural implications of aging, expansion of gerontological nursing based on integration of theory, research, standardized nursing languages.

096:228 Advanced Practice Genetic Nursing I 3 s.h.
Theories and principles of nursing, counseling, and human genetics; focus on nursing assessment, interventions, and outcomes for individuals, families, and populations at risk for genetic conditions. Prerequisites: 096:213, 096:214, and 096:223. Pre- or corequisites: 096:228 and 096:230.

096:229 Advanced Practice Genetic Nursing Practicum I 2 s.h.
Integration and application of advanced practice in genetic nursing assessment and counseling skills with individuals and families. Corequisite: 096:228 or consent of instructor.

096:230 Advanced Practice Genetic Nursing II 3 s.h.
Genetic conditions that present in adult years; gene detection, ethical and social implications of genetic health care delivery, professional issues in the delivery of genetic care. Prerequisites: 096:228 and 096:229. Corequisites: 07C:178 and 096:231.

096:231 Advanced Practice Genetic Nursing Practicum II 3 s.h.
Application of advanced practice in genetic nursing; emphasis on conditions that present in the adult years and the nurse's role in an interdisciplinary genetic delivery system. Prerequisite: 096:229. Corequisite: 096:230.

096:232 Professional Aspects of Clinical Nursing Practice 3 s.h.
Advanced nursing role competencies and related settings in which advanced nursing practice occurs; history and development, core competencies, advanced practice roles, practice management issues. Prerequisite: 096:208.

096:234 Advanced Community Health Assessment 3 s.h.
Health of communities, process of assessment; emphasis on conceptual models from public health that focus on select populations, community assessment. Prerequisite: course in epidemiology.

096:235 Advanced Community Health Nursing Prerequisites II 2 s.h.
Integration and application of advanced community health assessment knowledge, skills; nurse's role in population-focused practice. Prerequisites: a course in epidemiology and M.S.M. student standing. Corequisite: 096:234.

096:236 Advanced Community Health Intervention and Evaluation 3 s.h.
Development, implementation, evaluation of health promotion and disease prevention strategies for select populations, communities. Prerequisite: 096:234.

096:237 Advanced Community Health Nursing Practicum II 2 s.h.
Integration and application of knowledge and skills for advanced community health intervention, outcome evaluation. Offered spring semesters of odd years. Prerequisite: M.S.N. student standing. Pre- or corequisites: 096:236.

096:238 Intensive Practicum in Advanced Community Health 3 s.h.
Synthesis of advanced public health theory, nursing knowledge, in-depth experience synthesizing clinical management, role enactment. Offered summer sessions of odd years. Prerequisites: 096:235 and 096:237.

096:241 The Care of the Frail Elderly 3 s.h.
Clinical management of the elderly; emphasis on economic considerations, principles of gerontological care, common syndromes, ethical issues; clinical application experience in a long-term care setting. Prerequisites: 096:214, 096:222, and 096:224.

096:242 Primary Care: Adult/GNP Clinical Practice I 3 s.h.
Clinical management of the pathological alterations presented in 096:240, development of comprehensive assessment and clinical management skills in the context of community services and resources.

096:243 Primary Care: Adult/GNP Clinical Practice II 3 s.h.
Continuation of 096:242, which is prerequisite, clinical management of the pathological alterations presented in 096:284; comprehensive assessment and clinical management skills. Corequisite: 096:240.

096:244 Primary Care: Adult/Gerontological Nurse Practitioner III Intensive Practicum 3 s.h.
Transition from student to advanced adult/gerontological nurse practitioner; in-depth primary care experience synthesizing aspects of clinical management and role enactment. Prerequisite: 096:243.

096:246 Nursing Education: Process, Roles, and Strategies 3 s.h.
Role of nurse educator through study; application of teaching/learning theories; learning tasks of students in nursing education programs. Pre- or corequisite: 096:208 or consent of instructor.

096:247 Curriculum Development in Nursing Education 3 s.h.
Societal, educational, professional factors in undergraduate curriculum design; evaluation of components in basic nursing education programs. Prerequisite: 096:246.

096:248 Primary Care: Adult Nurse Practitioner I for Gerontological Nurse Practitioners 3 s.h.

096:249 Primary Care: Adult Nurse Practitioner II for Gerontological Nurse Practitioners 3 s.h.

096:250 Psychiatric/Mental Health Nursing Theory I 3 s.h.
Basic psychological principles, theories related to mental health and interventions between physical and mental health; psychological theory viewed through framework of lifespan development, infancy through adulthood. Prerequisite: graduate standing or consent of instructor.

096:251 Psychiatric/Mental Health Nursing Theory II 3 s.h.
Advanced psychiatric nursing practice with selected population: definition and expansion of practice based on the integration of theory, standardized languages, research, self-evaluation. Prerequisite: 096:250.

096:252 Psychiatric/Mental Health Nursing Practice with Individuals 3 s.h.
Therapeutic models that guide clinical practice with individuals: major psychological and biological theories applied to nursing process with individuals in a variety of settings. Prerequisites: admission to psychiatric/mental health nursing program, 096:224, and 096:251.

096:253 Psychiatric/Mental Health Nursing Practice with Families 3 s.h.
Experience using family therapy as a treatment modality; relevance of family intervention models for meeting mental health needs of families. Prerequisites: admission to psychiatric/mental health nursing program and 096:251.

096:254 Psychiatric/Mental Health Nursing Practice with Groups 3 s.h.
Experience using group process as a treatment modality; relevance of group intervention models for meeting mental health needs of clients across the life span. Prerequisites: admission to psychiatric/mental health nursing program and 096:251.

096:255 Psychiatric/Mental Health Care Management 3 s.h.
Direct and indirect care responsibilities, including clinical supervision, evaluation of treatment environments, program development, interdisciplinary collaboration; development of goals for future professional development and contributions to nursing. Prerequisites: 096:251 and 096:252.

096:256 Occupational Health Nursing I 3 s.h.
Framework for occupational health nursing practice and evolving role of the occupational health nurse; focus on health in the workplace. Prerequisite: 175:230 or consent of instructor. Corequisite: 096:257.

096:257 Occupational Health Practicum I 3 s.h.

096:258 Occupational Health Nursing II 3 s.h.

096:259 Occupational Health Practicum II 3 s.h.
Transition from student role to clinical specialist role in occupational health nursing; in-depth experience in student's interest area. Corequisite: 096:258.

096:260 Nursing Administration: Process, Roles, and Strategies 3 s.h.
Functions, responsibilities of nurse administrator; emphasis on hospital setting. Recommended: 096:208.

096:261 Nursing Administration: Process, Roles, and Strategies 3 s.h.
Analysis of functions, responsibilities of nurse administrator. Prerequisite: 096:260 or consent of instructor.

096:263 Informatics in Nursing and Health Care 3 s.h.
Foundation of information management and processing principles that support data, information, and knowledge in provision and delivery of nursing and health care. Prerequisites: competence in computer use and nursing major, or consent of instructor.

096:264 Nursing and Health Informatics in the International Context 2, 4 s.h.
Informatics dimensions of health care systems within a specific historical, cultural, legal, ethical, and political national context; focus on unique services of nursing, necessary information infrastructure. Prerequisite: a graduate informatics course.

096:266 Advanced Case Management: Interdisciplinary Approach 3 s.h.
Managing health care outcomes for cost and quality; advanced topics in health care coordination, interdisciplinary case management; managed care, financial, legal, and ethical considerations; outcomes of case management practice. Prerequisite: 096:170 or consent of instructor. Same as 174:266.

096:269 Human Physiology, Pathology, and Assessment for Advanced Practice Nursing 3 s.h.
Detailed study of normal and abnormal human physiology, including mechanisms that govern and support cell, organ, and system function; builds on basic sciences required for undergraduate nursing curriculum and in clinical skills from experience in intensive care setting. Prerequisite: admission to anesthesia nursing program or consent of instructor. Same as 096:270.

096:270 Human Anatomy, Physiology, Pathophysiology, and Assessment for Advanced Practice Nursing 3 s.h.
Interrelationships between anatomical structure and physiological function in health and disease; clinical assessment of functional integrity of organ systems; implications of pathophysiology for anesthesia. Prerequisite: admission to anesthesia nursing program or consent of instructor. Same as 096:270.

096:271 Chemical and Physical Principles of Anesthesia Practice 3 s.h.
Chemistry and physics, as applied to anesthesia. Prerequisite: admission to anesthesia nursing program or consent of instructor. Same as 116:271.
096:285 Primary Care: PNP Clinical Applications I 3 s.h.

096:286 Primary Care: Family Nurse Practitioner Clinical Applications II 3 s.h.

096:287 Pharmacology of Anesthesia Practice III 1 s.h.
Drugs specific to various specialty areas: tocolytics, vasoactive and cardioactive agents, drugs that alter clotting, chronic pain therapy agents. Prerequisites: enrollment in anesthesia nursing program and grade of 2.67 or higher in 096:273 or consent of instructor. Same as 116:291.

096:288 Primary Care: PNP Intensive Practice 4 s.h.
In-depth practice experience synthesizing clinical management and role enactment; seminar on practice and role issues. Prerequisite: 096:286.

096:289 Health Informatics II 3 s.h.
Selected health informatics initiatives, including computer based patient records, physiologic monitoring, networking, imaging, virtual reality; participation in an interdisciplinary project team focused on an informatics innovation; application and research seminars. Prerequisite: graduate standing or consent of instructor. Same as 021:280, 051:189, 056:287, 074:192.

096:290 Introductory Clinical Anesthesia 1 s.h.
Initial anesthesia precepthip; development of basic clinical skills for work as a nurse anesthetist. Prerequisites: enrollment in anesthesia nursing program and basic science core courses. Same as 116:290.

096:291 Clinical Anesthesia I 1 s.h.
Supervised anesthesia clinical experience for general, orthopedic, gynecologic, pediatric, dermatal, EENT, ambulatory surgery; or invasive diagnostic procedures. Prerequisites: enrollment in anesthesia nursing program and 096:290. Same as 116:291.

096:292 Clinical Anesthesia II 1 s.h.
Clinical anesthesia experience under faculty supervision at University Hospitals and Clinics, in surgical subspecialty rotations not completed in 096:291. Prerequisites: enrollment in anesthesia nursing program and 096:291. Same as 116:292.

096:293 Advanced Clinical Anesthesia 1 s.h.
Clinical anesthesia experiences in neurologic surgery, cardiovascular/thoracic surgery, experience providing anesthesia for patients with complex pathophysiologic in varied surgical settings. Prerequisites: senior standing in anesthesia nursing program, p.g.a. of 2.67 or higher, and anesthesia nursing concentration courses. Same as 116:293.

096:294 Obstetrical Anesthesia 1 s.h.
Experience providing anesthesia for the parturient, initial neonatal care, two one-month rotations off campus. Prerequisite: enrollment in anesthesia nursing program. Same as 116:294.

096:295 Rural Anesthesia 1 s.h.
Anesthesia experience in community hospitals; three one-month rotations at US-affiliated clinical sites in rural Iowa. Prerequisite: enrollment in anesthesia nursing program. Same as 116:295.

096:290 Independent Study arr.
Supervised study and/or clinical practice adjusted to needs of master's degree students. Prerequisite: master's standing.

096:298 Master's Project arr.


For Doctoral Candidates
Open only to doctoral students or to others with consent of instructor.

096:300 Classics in the Social Evolution of Modern American Nursing 3 s.h.
From 1870 to present: writings, classic books, documents; influence of societal conditions on expansion of nursing services, education.

096:310 Advanced Nursing Informatics 3 s.h.
Management and processing of data and information, evaluation of information systems; selected informatics research methods that support knowledge development. Prerequisite: a graduate-level informatics course or consent of instructor.

096:311 Advanced Seminar in Nursing Informatics 3 s.h.
Philosophy, theory, analysis, and evaluation of nursing informatics innovations, research, issues. Prerequisites: 096:263 and 096:310, or consent of instructor.

096:312 Advanced Practice in Clinical Information Systems 3 s.h.
Nursing informatics theory applied to design, modification, implementation, and evaluation of nursing and health information systems; supervised clinical research. Prerequisites: 096:263 and 096:310, or consent of instructor.

096:313 Computational Intelligence 3 s.h.
Same as 056:235.

096:314 Integrated Seminar in Nursing Informatics 3 s.h.
Topics focused on problems related to nursing and health informatics theory, measurement, methodology, ethics, and policy issues. Prerequisites: doctoral standing and consent of instructor.

096:320 Economics of Health Care and Nursing 3 s.h.
Economic principles: demand, supply for health manpower, insurance, costs, financing of health care services; contemporary hospital structures, organization; role of government.

096:330 Nursing's Role in Health Care Policy 3 s.h.
Impact of federal health policy on nurses, nurse manpower projections, trends in hospital nursing, challenges of long-term care, frontiers of nursing practice, strategies for increasing nurses' autonomy, federal nursing priorities.

096:340 Nursing Theory Construction I 3 s.h.
Foundation of theory for professional practice; history, philosophy, sociology of science; development of a scientific community in nursing; relationship between theory construction, research; methods for generating specific theories.

096:341 Nursing Theory Construction II 3 s.h.
Generation, testing, reformulation of theory for professional practice; focus on legal, ethical, political forces that shape and influence research, scholarship; how research and scholarship contribute to society. Prerequisite: 096:340 or consent of instructor.

096:405 Family Nursing Research 3 s.h.
Family theories and empirical research from nursing and related disciplines; mid-range family theories; issues in research methodology.

096:410 Nursing Research of Biological Phenomena and Interventions for the Elderly 3 s.h.
Analysis, evaluation of research on health of elderly, aging process; emphasis on methodological issues, instrumentation appropriate for study of biological phenomena. Same as 153:410.

096:415 Genetic Nursing Research 3 s.h.
Concepts in human genetics integrated with nursing research; methodological issues in study of populations with specific genetic problems; generation of testable hypotheses.

096:420 Geriatric Mental Health Research 3 s.h.
Analysis, evaluation, emphasis on program evaluation, geriatric mental health research programs, methodological issues. Same as 153:420.

096:425 Research in Sociocultural Perspectives for Family and Women's Health 3 s.h.
Health experiences of U.S. women and families from oppressed, marginalized cultural and social groups; approaches to developing and testing interventions, outcomes promoting and enhancing health of women and families; mid-range theory related to health care access and utilization.

096:430 Nursing Research in Sociocultural Phenomena and Interventions for the Elderly 3 s.h.
Sociocultural issues for aging clients, corresponding nursing interventions; theoretical orientations to dynamics of aging, transitions and role changes, social/environmental issues. Same as 153:430.

096:435 Research in Cognitive and Behavioral Interventions for Children 3 s.h.
Research on cognitive and behavioral problems in children, research designs and data analysis, evaluation of instruments, areas that need further development, development of testable research questions.

096:440 Research Utilization Residency in Care of the Elderly 3 s.h.
Project based on relevant gerontological nursing research. Prerequisites: two courses from 096:410, 096:420, or 096:430.
096:445 Research Residency in Child and Family Nursing 3 s.h.
Research or research utilization project based on relevant child and/or family nursing research, guided by preceptor.

096:450 Research Seminar in Nursing Administration I: Organizational Systems Concepts 3 s.h.
Health care organization, nurses in the organization: data collection instruments, directions for further research, implications for model building, research methods, practice.

096:451 Research Seminar in Nursing Administration II: Health Care System Concepts 3 s.h.
Management concepts, health care factors that influence delivery of care systems; patient outcomes; measurement of quality nursing care. Prerequisite: 096:450 or consent of instructor.

096:460 Innovations in Nursing Management 3 s.h.
Current and emerging issues that affect functions, responsibilities of nurse administrator; research base for recent innovations in nursing management; delivery of care systems for high-risk populations.

096:462 Research in Nursing Informatics I 3 s.h.
Fundamental theoretical research regarding study of symbolic representation (text, image, voice), comprehending and communicating nursing phenomena, developing methods to build databases, and developing prototypes of decision support systems and workstations. Prerequisites: doctoral standing and 096:310.

096:463 Research in Nursing Informatics II 3 s.h.

096:464 Nursing and Health Representation and Knowledge Building 3 s.h.
Structure and contents of health and nursing representation schemes, knowledge retrieval, and knowledge building; strategies for implementing and evaluating representation schemes in health delivery and knowledge development contexts. Pre-corequisite: 096:463.

096:465 Residency in Nursing Informatics Application of nursing informatics in a practice setting. 3 s.h.

096:470 Methods and Issues in Nursing Interventions Effectiveness Research 3 s.h.
Issues in conducting research on nursing interventions and on clinical interventions cost effectiveness; methods and issues in classification of nursing, health, health systems phenomena. Prerequisite: doctoral or postdoctoral standing in nursing or consent of instructor.

096:480 Residency in Nursing Service Administration 3 s.h.
Application of administrative skills in a practice setting.

096:490 Research Practicum 0 s.h.
Participation in ongoing investigative team as research assistant; followed by 096:491. Prerequisite: consent of advisor.

096:491 Research Practicum 0 s.h.
Continuation of 096:490. Prerequisite: consent of advisor.

096:496 Independent Study 1 s.h.
Supervised study adjusted to needs of doctoral degree students. Prerequisite: doctoral standing.

096:497 Dissertation Research Seminar I: Scholarship Development 1 s.h.
Preparation for successful completion of doctoral course work and dissertation, establishment of career research direction. Corequisite: 096:490.

096:498 Dissertation Research Seminar II 0 s.h.
Research methods, analysis procedures.

096:499 Dissertation Research 0 s.h.

Electives

ISIS lists nursing electives being offered during a particular semester. Not all courses are offered each semester.

096:108 Basic Aspects of Aging 3 s.h.

096:112 Human Sexuality 1-3 s.h.
Physiological, psychological aspects. Same as 07C:112, 042:112.

096:117 Improving Outcomes for People with Disabilities 3 s.h.
Community supports used by persons with disabilities and their families. Same as 07U:117, 042:117.

096:118 Pathophysiology 3 s.h.
Abnormal physiological health transitions; disorders in cells; organs; systems involved in vegetative functioning and biological defense of the human organism. Prerequisites: one course each in anatomy, chemistry, microbiology, physics, physiology, and psychology, or consent of instructor.

096:119 Neurological and Behavioral Pathology 1-2 s.h.
Abnormal physiological and psychological health transitions that have well-documented physiological and/or behavioral bases; focus on neurological and behavioral disorders. Pre-corequisite: 096:118.

096:137 Nursing Care of the Patient in Pain 3 s.h.
Assessment, pharmacological and nonpharmacological nursing intervention, evaluation of acute, chronic-benign, and chronic-malignant pain. Prerequisite: R.N. standing.

096:138 Nursing Care of the Patient with Cancer 3 s.h.
Basic understanding of the physiology of cancer and various treatment modalities, nursing interventions commonly used with cancer patients and their families, and psychosocial issues in cancer. Prerequisites: 096:124 and 096:135, or R.N. standing.

096:150 Independent Study 0 s.h.
Study and/or clinical practice.

096:151 Honors Independent Study 1-3 s.h.
Project or experience related to the course objectives of a required nursing course. Repeatable. Prerequisite: honors standing.

096:152 Honors Seminar 1 s.h.
Humanities, social and biological sciences topics related to nursing; contemporary issues that affect nursing practice. Repeatable. Prerequisite: honors standing.

096:160 Intermediate Pathophysiology 3 s.h.
Disorders experienced by individuals over the lifespan that have a well-documented physiological base, underlying biological mechanisms that produce signs and symptoms; risk factors and contributing causes. Taught online. Prerequisite: college-level courses in animal biology, anatomy, microbiology, and physiology.

096:162 Nursing in Faith Communities: Introduction to Role and Practice 3-4 s.h.

096:165 Applied Genetics for Health Care Professionals 2-3 s.h.
Genetics in health, illness; human genetic principles, their clinical application, their application to health care policy. Prerequisite: R.N. standing or consent of instructor.

096:172 Health and Cultural Diversity 3 s.h.
Same as 113:108, 152:108.

096:174 Transcultural Mental Health 3 s.h.
Cross-cultural perspectives on mental health, illness; expected behavioral patterns for developmental ages in various cultures, deviance from these patterns. Offered spring semesters of odd years. Prerequisite: junior standing in anthropology or consent of instructor. Same as 152:107.

096:175 Issues in International Nursing and Health Care 3 s.h.
Same as 152:175.

096:179 Selected Topics in Nursing 1-2 s.h.
In-depth study of topics in professional nursing practice and health care; workshop format.

096:182 Internal Medicine Elective (Complementary and Alternative Medicine) for Physician Assistant Students 0 s.h.
Same as 046:105, 117:346.

096:216 Group Leadership in Human Sexuality 0-3 s.h.
Emphasis on role of group leader, method of teaching didactic presentation, discussion; group experience, practice application. Same as 07C:216, 042:216.
Dean: Jordan L. Cohen
Associate dean, academic affairs: Bernard A. Sorofman
Associate dean, research and graduate affairs: Michael W. Duffel
Assistant to the dean: Michael T. Sullivan
Director, Pharmaceutical Service: Roland I. Poust
Director, Division of Drug Information Service: Hazel H. Seaba
Laboratory director, Center for Advanced Drug Development: Anita Botta
Head, medicinal and natural products chemistry: Kevin G. Rice
Head, pharmacoeconomics: Craig K. Svensson
Head, clinical and administrative pharmacy: Barry L. Carter
Professors (clinical): Bruce Alexander, James A. Ponto, Hazel H. Seaba
Adjunct professors: Douglas Gerats, Robert Linhardt, Ellen Nickel, Patrick O’Neill, Craig Osland, Robert Douglas Morgan, Shelly Murray, Joan Murhammer, Susan Lutz, Joseph Mac, Megan McHone, Lisa Johnson, Robert Keane, Martha Kemp, Thomas Temple, Scott Thompson, Patti Trenkamp, Christi Turney, James Van Winkle, Nancee Watery, David Weetman, Eric Whitaker, Amber Wilson, Heidi Wolfe, Izabela Wozniak
Instructors (clinical): Lucinda M. Harms, Jeff Reist
Degrees: Pharm.D.; M.S., Ph.D. in Pharmacy
Web site: http://www.pharmacy.uiowa.edu
The pharmacy profession is concerned with a wide variety of activities, from developing new drug products to dispensing medicines to patients. A recent concept in the delivery of pharmaceutical services is pharmaceutical care—the responsible provision of drug therapy to achieve defined outcomes that improve patients’ quality of life. These outcomes include preventing, arresting, or curing a disease, and/or eliminating or reducing its symptoms.

Pharmaceutical care can enhance health care in rural settings and in primary care among the elderly, who are by far the heaviest users of drug therapy. In order to carry out these responsibilities, pharmacists specialize in the science of drugs and drug information.

The familiar picture of the pharmacist in the corner pharmacy is only one part of the mosaic. Pharmacists are active in research, clinical practice, teaching, and counseling. While training in science and drug preparation, they also learn the business and communication skills necessary for their multifaceted careers.

Demand for qualified pharmacists is high. Iowa’s graduates enjoy a 100 percent placement rate. Iowa’s pharmacy students study with professors who, in many cases, are pioneering the development of new drugs to solve chronic health problems. They also enjoy advanced research facilities, including those of Iowa’s drug research and manufacturing area, where experimental drugs are produced for testing and licensing by manufacturers before being introduced worldwide.

The College of Pharmacy’s faculty and programs are organized in divisions defined by three major content areas: clinical and administrative pharmacy, medicinal and natural products chemistry, and pharmaceutics. These divisions provide course work for both the Doctor of Pharmacy curriculum and specialized graduate programs.

**CLINICAL AND ADMINISTRATIVE PHARMACY DIVISION**

Many faculty members in this division also are pharmacy practitioners in a wide variety of settings. They provide instruction in practice-related teaching, technical and laboratory methods related to communications, law, and ethics; pharmacy practice; and therapeutics. They also serve as role models in both introductory and advanced practice settings, where they deliver a wide variety of closely supervised practice-based teaching.

Much of the course work offered in pharmacy practice settings is provided by volunteer pharmacists who practice in varied settings on campus and statewide. Some faculty members in this division also provide course work related to administrative aspects of pharmacy and healthcare.

The division’s graduate program includes an M.S. in clinical pharmaceutical sciences, and an M.S. and Ph.D. in the behavioral, economic, social, and administrative sciences related to pharmacy.

**MEDICINAL AND NATURAL PRODUCTS CHEMISTRY DIVISION**

This division provides course work in areas related to understanding the chemistry of drugs and their action on human systems. Additional content areas include principles of drug discovery and drug design, natural product chemistry, and biotechnology/genomic strategies for producing new drug molecules.

The division’s M.S. and Ph.D. programs provide abundant opportunities for interface with researchers in other areas, including medicine, pharmacology, biochemistry, chemistry, and pharmaceutics.

**PHARMACUTES DIVISION**

This division focuses on physical pharmacy, dosage form development and performance, industrial and manufacturing pharmacy, and the pharmacokinetics and pharmacodynamics of drugs and biological molecules. M.S. and Ph.D. programs parallel the research in the division with specialization in formulation and preformulation sciences, biopharmaceutics, pharmacokinetics, pharmacodynamics, novel drug delivery systems, and tissue engineering. Multidisciplinary program opportunities also exist with faculty in chemistry, engineering, dentistry, and other departments.

**Accreditation**

The University of Iowa College of Pharmacy is accredited by the American Council on Pharmaceutical Education. Graduates of the Doctor of Pharmacy (Pharm.D.) program are qualified to take the national licensure examination given by the Iowa Board of Pharmacy Examiners.

**Doctor of Pharmacy (Pharm.D.)**

Students enroll in pharmacy in the Doctor of Pharmacy program. They receive professional education in a number of areas, including pharmaceutical technology, biopharmaceutics, medicinal chemistry and natural products, pharmaceutical socioeconomic, and clinical and hospital pharmacy. Aspects of biotechnology are a common part of pharmacy education.

The Tippie College of Business, the Carver College of Medicine, the College of Dentistry, and the College of Liberal Arts and Sciences contribute to the education of pharmacy students by providing instruction in the physical sciences, basic medical sciences, business, the humanities, and social sciences.

The Doctor of Pharmacy program in pharmacy consists of two years of prepharmacy study, taken in the College of Liberal Arts and Sciences at The University of Iowa or at any accredited community or liberal arts college, and four years of pharmacy studies in the College of Pharmacy. Deadline for admission is January 1.

Graduation from the Doctor of Pharmacy program in pharmacy requires satisfactory completion of the required courses, including 20 s.h. of general education electives, and a pharmacy g.p.a. and a total cumulative g.p.a. of at least 2.00. The pharmacy grade-point average is computed from grades earned in all required courses that students have completed while enrolled in the College of Pharmacy, excluding general education electives, professional electives, and selectives.

Rules and regulations concerning academic probation, pass/nonpass, credit by examination, maximum schedule, second-grade-only option, waiver or substitution of courses, cancellation of registration, drop date, and correspondence study are provided on ISIS in the College of Pharmacy section of the Student Handbook, and in the Handbook for Pharmacy Students.

**Admission Acceptance Fee**

Effective with admission for fall 2003, students admitted to the College of Pharmacy are required to submit a $250 admission acceptance fee. The fee is credited to the student’s first semester tuition after enrollment in the college. The deposit is not refundable to applicants who do not enroll in the College of Pharmacy.

**Professional Curriculum**

Students must be enrolled in the College of Pharmacy before they may take College of Pharmacy courses. Graduate students in other majors may take College of Pharmacy courses only with the instructor’s consent.

In addition to the specific courses listed here, students must complete 20 s.h. of general education courses chosen from the behavioral, social, humanistic, and business disciplines.

**FIRST YEAR**

**First Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
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</thead>
<tbody>
<tr>
<td>046:050</td>
<td>Pharmacy Practice I</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>046:103</td>
<td>Introduction to Pharmacy Literature</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>046:123</td>
<td>Pharmaceutics I: Solutions</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>046:132</td>
<td>Introduction to Human Pathology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>046:162</td>
<td>Biochemistry for Pharmacy Students</td>
<td>4 s.h.</td>
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<tr>
<td>Professional electives</td>
<td></td>
<td>3 s.h.</td>
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</tbody>
</table>

**Second Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>046:001</td>
<td>Community Service: Introductory Practice Experience I (if not taken first semester)</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>046:051</td>
<td>Pharmacy Practice II</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>046:104</td>
<td>Pharmacy Law and Ethics</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>046:124</td>
<td>Pharmaceutics II: Solids and Semi-solids</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>046:128</td>
<td>Medicinal and Natural Products Chemistry I: Biotechnology and Chemotherapy</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>071:180</td>
<td>Pharmacology for Pharmacy Students I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Professional electives</td>
<td></td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**SECOND YEAR**

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</thead>
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<td>046:106</td>
<td>Clinical Practice Skills</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>046:116</td>
<td>Pharmacy Practice Lab III</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>046:131</td>
<td>Medicinal and Natural Products Chemistry II: Pharmacodynamic Agents</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>046:138</td>
<td>Pharmacokinetics and Biopharmaceutics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>046:149</td>
<td>Introduction to Therapeutics</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>046:154</td>
<td>Endocrinology, Ophthalmology, Literature</td>
<td>1 s.h.</td>
</tr>
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</tbody>
</table>
SECOND SEMESTER

046:003 Introductory Practice Experience III (if not taken first semester) 1 s.h.
046:108 Clinical Practice Skills III 2 s.h.
046:115 Clinical Pharmacy: Drug Literature Review and Evaluation 2 s.h.
046:118 Pharmacy Practice Lab V 2 s.h.
046:130 Core Principles in Pharmaceutical Socioeconomics 3 s.h.
046:158 FEN, GI, and Renal Therapeutics 2 s.h.
046:159 Rheumatology, Immunology, Hematology, Oncology, and Transplantation Therapeutics 2 s.h.
Professional electives 4 s.h.

SECOND SEMESTER

046:003 Introductory Practice Experience III (if not taken first semester) 1 s.h.
046:110 Clinical Practice Skills IV 2 s.h.
046:119 Pharmacy Practice Lab VI 2 s.h.
046:164 Neurology/Psychiatry Therapeutics 2 s.h.
046:165 Infectious Disease Therapeutics 2 s.h.
PSE selective 4 s.h.
Professional electives 5 s.h.

FOURTH YEAR—ADVANCED PRACTICE EXPERIENCES

During the fourth year, students are required to take nine 5-week rotations. These experiences give students opportunities to work in a variety of settings with pharmacists providing pharmaceutical care to their patients. The emphasis in these experiences is the provision of primary care, which is especially important in rural areas of Iowa.

Students earn a total of 36 s.h., as follows.
046:178 Hospital Pharmacy Rotation 4 s.h.
046:179 Community Pharmaceutical Care Rotation 4 s.h.
046:180 Medicine Rotation 4 s.h.
046:181 Family Practice Rotation 4 s.h.
046:183 Community Pharmacy Rotation 4 s.h.
Four rotations (4 s.h. each) 16 s.h.

The rotations are chosen from a large number of professional offerings; up to three of them may consist of research experience. Students may take additional courses during this year to prepare for graduate school.

PROFESSIONAL ELECTIVES

046:005 Dean's Pharmacy Forum I 1-2 s.h.
046:006 Dean's Pharmacy Forum II 1-2 s.h.
046:011 Foundations of Medicinal Chemistry and Pharmacology 3 s.h.
046:015 Introductory Practice Experience III during the third professional year.
046:120 Advanced Compounding 3 s.h.
046:121 Substance Abuse 3 s.h.
046:135 Perspectives in MCNP Research 1 s.h.
046:136 Medicinal Chemistry of CNS Active Agents 3 s.h.
046:142 Contemporary Issues in Pharmacy Practice 3 s.h.
046:144 Elective: Insurance and Reimbursement 2-3 s.h.
046:147 Introduction to Research Methods 3 s.h.
046:157 Quantitative Research Methods in Pharmacy 4 s.h.
046:171 Nonprescription Pharmacotherapy 2 s.h.
046:172 Pharmakostatistics 2 s.h.
046:173 Parenteral Products and Technology 2 s.h.
046:174 Pharmacy Service Development 3 s.h.
046:176 Immunization Theory and Practice 2 s.h.
046:177 Emerging Issues in Infectious Diseases 2-3 s.h.
046:198 Elective: Hospital Pharmacy Practice Management 2 s.h.
046:203 Advanced Psychopharmacotherapeutics I 2 s.h.
046:204 Advanced Psychopharmacotherapeutics II 2 s.h.
046:211 Total Synthesis of Natural Products 3 s.h.
046:215 Current Medicinal Chemistry 3 s.h.
046:219 Analytical Biochemistry 3 s.h.
046:227 Medicinal and Natural Product Chemistry Seminar 1-2 s.h.
046:244 Gender Analysis of Medication 2 s.h.
046:253 Elective: Economics and Treatment Choice 2 s.h.
046:255 Elective: Social Pharmacy 2-3 s.h.
046:256 Elective: Marketing and Healthcare 2 s.h.
046:257 Foundation Literature in Pharmaceutical Socioeconomics arr.

ROTATIONS

046:161 Drug Information Rotation 4 s.h.
046:179 Community Pharmaceutical Care Rotation 4 s.h.
046:180 Medicine Rotation 4 s.h.
046:181 Family Practice Rotation 4 s.h.
046:182 Pediatrics Rotation 4 s.h.
046:184 Psychiatry Rotation 4 s.h.
046:185 Neurology Rotation 4 s.h.
046:186 Surgery Rotation 4 s.h.
046:187 Clinical Nuclear Pharmacy Rotation 4 s.h.
046:189 Pharm.D. Elective Rotation 4 s.h.
046:192 Long Term Care Rotation 4 s.h.
046:193 Home Health Care Rotation 4 s.h.
046:194 Managed Care Rotation 4 s.h.
046:196 Ambulatory Care Rotation 4 s.h.
046:197 Hematology/Oncology Rotation 4 s.h.
046:199 Research Rotation 4 s.h.

Joint Pharm.D./M.P.H. Program

The joint Pharm.D./M.P.H. program helps students develop expertise in public health related to pharmacotherapy, health promotion, disease prevention, and medication safety. Graduates of the program may work in areas of interest common to pharmacy and public health, such as spread and treatment of disease, community health, and immunology; bioterrorism, terrorism, and preparedness; genetics; insurance; managed care; family and juvenile health; and protection of special populations. Employment opportunities are available in hospitals and clinics and with health care providers; private practice; insurance and managed care organizations; local, county, state, and federal government; public health governmental agencies; and colleges and universities.

To enter the joint Pharm.D./M.P.H. program, applicants must be admitted to the Doctor of Pharmacy program in the College of Pharmacy and to the Master of Public Health program in the College of Public Health. Admission requirements include a bachelor's degree or a minimum of 120 s.h. of undergraduate coursework; an undergraduate cumulative g.p.a. of at least 3.00; one semester each of college algebra and biology; transcripts of all college coursework; scores (preferably at or above the national median) on the Graduate Record Exam or the Pharmacy College Admission Test (PCAT); and three professional recommendations (University of Iowa recommendation forms are required). Candidates must be accepted to the Pharm.D. program before they can be accepted to the joint degree program.

Requirements

Students in the Pharm.D./M.P.H. program must complete M.P.H. core courses, practicum, and public health electives in addition to courses required for the Pharm.D. degree.

M.P.H. CORE COURSES

Students must earn a B- or higher on each core course and a cumulative g.p.a. of at least 3.00 on all core courses. Students may repeat core courses to achieve this standard.

All of these:
170:101 Introduction to Public Health 3 s.h.
171:161 Introduction to Biostatistics 3 s.h.
172:101 Introduction to Health Promotion and Disease Prevention 3 s.h.
173:140 Epidemiology I: Principles 3 s.h.
175:197 Environmental Health 3 s.h.

One of these:
174:102 Introduction to the U.S. Health Care System 3 s.h.
174:200 Introduction to Health Care Organization and Policy 3 s.h.
M.P.H. ELECTIVES

Students select electives totaling 9 s.h. from one of the following public health areas: biostatistics, community and behavioral health, epidemiology, occupational and environmental health, public health genetics, health management and policy, aging studies, maternal child and family health, global health, clinical investigation, or nutrition and exercise. Electives are chosen in consultation with the student’s advisers in the Colleges of Pharmacy and Public Health.

COURSES THAT COUNT TOWARD BOTH DEGREES

The following required courses from the Pharm.D. curriculum (9 s.h.) also count as credit toward the M.P.H.: 046:130 Core Principles in Pharmaceutical Economics, 046:154 Endocrinology, Ophthalmology, Women’s and Men’s Health Therapeutics, 046:156 Cardiovascular Therapeutics, and 046:165 Infectious Disease Therapeutics.

PHARM.D. REQUIREMENTS

The joint Pharm.D./M.P.H. program requires students to complete the professional curriculum of the Pharm.D. program (see “Doctor of Pharmacy” in this section of the Catalog). In addition to the professional curriculum, Pharm.D./M.P.H. students also must complete one semester of community service (046:001 Community Service: Introductory Practical Experience I) during the first professional year, and a three-week community externship (046:002 Basics of Community Pharmacy: Introductory Practical Experience II) some time after the end of the first professional year and before the beginning of the third professional year.

Students must be enrolled in the College of Pharmacy in order to take College of Pharmacy courses.

Honors

The honors program gives students an opportunity to interact as part of a small group with leading professors and scientists from all areas of the University. Students with the required grade-point averages may enroll in the Honors Seminar, a series of weekly discussions on topics from the humanities, the sciences, law, and the social sciences.

Honors students may elect to prepare a major paper or carry out a research project of limited scope. Seminar participation, appropriate grade-point average, and satisfactory completion of the project certifies them as having completed the College of Pharmacy Honors Program.

Admission

The college-level course work outlined below is the minimum academic requirement for admission to the College of Pharmacy. The Pharmacy College Admission Test (PCAT) and a personal statement are required for admission; personal interviews and letters of recommendation are required. Students must have an overall cumulative g.p.a. of at least 2.50 to be considered for admission.

Fulfillment of these requirements does not ensure admission to the college. The college admission committee selects the best qualified applicants. Questions concerning satisfaction of degree requirements should be directed to the college’s Office of Academic Affairs.

Preprofessional Course Work

Rhetoric: 8 s.h., or 6 s.h. of transfer credit in English composition and rhetoric, and 2-3 s.h. in speech (001:080 and 001:081, or 001:083)

Human anatomy: 3 s.h. (060:001)

General biology: 8 s.h. (002:012-022:011 Principles of Biology I-II)

General chemistry: 6-8 s.h. (004:012-004:012)

Microbiology: 6 s.h. (004:121-004:122)

Mathematics: 3-4 s.h. of a satisfactory differential and integral calculus course (22M:016)

Microbiology: 4 s.h. (061:112)

Microeconomics: 3-4 s.h. (066:001)

Physics: one year of high school physics or one semester of college-level physics with a lab (029:008)

Human physiology: 3-4 s.h. (072:150)

Statistics: 3 s.h.

General education electives: at least 12 s.h.

Each student must complete 20 s.h. of general education courses in order to graduate. Courses in moral reasoning or ethics, communications, computer science, and business are recommended. Courses in the behavioral and social sciences and the humanities are acceptable. Courses in physical education skills, applied music, and studio art are not acceptable.

Transfer Students

A grade of C or higher is required for transfer work applied toward the pharmacy degree.

Financial Aid

A number of awards are available to students working toward the Pharm.D. degree. To be eligible for awards, students must have completed at least one year in The University of Iowa College of Pharmacy. Each award goes to only one student, unless noted otherwise. Scholarship application forms are available from the College of Pharmacy Office of Academic Affairs.

American Drug-Osco Scholarship: for a pharmacy student with a g.p.a. of at least 2.00 who is employed in a community pharmacy and resides in Iowa, Minnesota, Missouri, Nebraska, South Dakota, or Wisconsin. Two awards.

Melissa Arbogast Scholarship: for a pharmacy student with a cumulative g.p.a. of at least 3.00 who has demonstrated financial need and a strong desire to pursue a pharmacy career.

Seymour M. Blaug Memorial Award: for a pharmacy student with above-average academic achievement.

B.P. Bogan Memorial Award: for junior pharmacy student with a g.p.a. of at least 2.50 and an interest in the practice of community pharmacy.

Iise O. Buckner Scholarship: for a needy pharmacy student who maintains satisfactory academic progress; nonrenewable, number varies.

Burroughs Wellcome Co. Scholarships: for selected pharmacy students; financial need is considered; number varies.

Eugene Challed Scholarship: for selected pharmacy students.

Conzemius Scholarships: for selected pharmacy students; number varies.

Ben M. Cooper Memorial Award: for an academically outstanding undergraduate student; preference is given to students from Scott County, Iowa; financial need is considered.

Max Eggleston Scholarship: for a student who has completed one year; preference is given to students from Iowa; based on financial need; renewable.

Charles E. Greger Memorial Award: for a sophomore student; based on professional attitude and need.

Lori A. Grimes Memorial Scholarship: based on financial need.

Thomas D. Hill Scholarship: for any pharmacy student in good academic standing; number varies.

Frances T. and Charles Holub Memorial Awards: for selected third-year pharmacy students; financial need is considered; number varies.

Iowa Pharmacists Association Women’s Auxiliary Scholarship: for a female pharmacy student who is a resident of Iowa; financial need is considered.

Iowa Pharmacy Foundation Scholarships: for selected pharmacy students who are residents of Iowa, in good academic standing; nonrenewable.

Linder Pharmacy Scholarship.

Ronald Madden Scholarship: for an Iowa high school graduate with a B average or better in high school.
Charles J. Malecek Pharmacy Scholarship: for a third-year pharmacy student.
Carleton Mikkelsen Scholarship.
Miller-Ruegnitz Scholarships: based on financial need; nonrenewable.
Pharmacists Mutual Scholarship: for a student who intends to become a community practitioner; must be from a midwest state where Pharmacists Mutual operates; based on academic achievement and need.
Gordon H. Sheffield Scholarships: for selected junior or senior pharmacy students who are residents of Iowa, who have demonstrated outstanding academic ability, leadership, financial need, and who have contributed service to the University community; three awards.
Shutt Pharmacy Scholarship: based on financial need; preference given to Iowa residents.
H. Curtis Snyder Award: preference given to a student interested in a sales position.
Wilbur J. Teeters Scholarship: for a pharmacy student who has completed at least one year in the college; financial need is considered.
Teeters/Wahl Scholarships: for selected pharmacy students based on need, outstanding academic ability, and U.S. citizenship; number varies.
John Stanley Thor Memorial Award: for a pharmacy student in good standing; financial need is considered.
Wal-Mart Scholarship: for a junior pharmacy student with high scholastic standing who demonstrates strong leadership, financial need, and the desire to enter a community pharmacy practice; nonrenewable.
Walgreen’s Scholarship: for a P4C student with a g.p.a. of at least 2.00, outstanding leadership and communication skills, and an interest in community pharmacy practice.
Louis C. Zopf Memorial Awards: for selected pharmacy students who are academically qualified; financial need is considered; two awards.
John and Betts Zuelke Scholarship: preference given to an Ottumwa, Iowa, area resident.

Graduate Programs

The college has graduate programs in each of its three academic divisions. Master of Science and/or Doctor of Philosophy programs are available in pharmaceutics, medicinal and natural products chemistry, and clinical and administrative pharmacy.

Advanced study in the pharmaceutical sciences prepares students for research, teaching, and administrative positions in the pharmaceutical industry, in colleges and universities, in government agencies, and in a number of health-related institutions and organizations.

The application deadlines, grade-point average for admission, Graduate Record Examination (GRE) General Test scores, and necessary letters of recommendation are the same as those for the Graduate College (see Manual of Rules and Regulations of the Graduate College). Academic requirements for maintaining graduate registration are determined by the Graduate College and by the individual divisions of the College of Pharmacy.

More information about graduate study in the college is available on the college’s web site.

Facilities

The Pharmacy Building is located in the health center complex on the University’s main campus, in close proximity to the Carver College of Medicine and the Colleges of Dentistry, Nursing, and Public Health. University of Iowa Hospitals and Clinics, the Bowen Science Building, and the Hardin Library for the Health Sciences also are nearby.

The building is a five-story structure designed to provide modern facilities for a comprehensive program of pharmacy education. In addition to classrooms and auditoriums, there are well-equipped separate laboratories for instruction at the professional and graduate levels.

The college operates small and large classrooms with state-of-the-art technology. The student practice lab is a technologically advanced licensed pharmacy that provides real and simulated practice experiences. The Banker Student Activity Center provides quiet individual and small-group study environments and houses student organization offices.

The building also houses the Learning Resource Center (LRC), with current texts and periodicals useful to professional and graduate pharmacy students. The LRC has state-of-the-art computer terminals available to students and provides online computer searches for pharmacy students and faculty.

The Center for Advanced Drug Development can engage in the full range of the drug development process through the resources of The University of Iowa’s Division of Pharmaceutical Service, the Iowa Drug Information Network, and the Center for Biocatalysis and Bioprocessing.

The Division of Pharmaceutical Service, a pharmaceutical manufacturing facility registered with the U.S. Food and Drug Administration, develops pharmaceutical dosage forms and manufactures clinical supplies in compliance with Good Manufacturing Practices for clinical trials in humans. Its staff works closely with clients and pharmaceutics faculty members to produce virtually every type of pharmaceutical dosage form.

The Division of Drug Information Service, a service division of the college located on the University’s Oakdale Campus, publishes the Iowa Drug Information Service (IDIS), a bibliographical database that provides full-text access to specialized information related to drugs and drug therapy. IDIS reaches subscribers throughout the world. The division also is home to the Iowa Drug Information Network (IDIN), which serves a network of community pharmacies and family practice sites with drug information resources, educational programs, and direct-response consultations that support the pharmaceutical care initiatives at the network’s sites. The division plays an important educational role for pharmacy students by providing both didactic and experiential teaching in drug information.

In order to provide students with the highest possible quality in their profession experiential program, the College of Pharmacy uses a variety of practice sites. College faculty members and adjunct faculty members serve as preceptors in the experiential program. Varied institutions and pharmacy practices in Iowa and nationwide provide sites of rotations for fourth-year students during their experiential year. They also provide introductory practice experience to students earlier in the curriculum. Inpatient, acute care medicine, specialty practice areas, ambulatory care, family medicine, long-term care, home health care, community pharmaceutical care, and hospital and community pharmacy rotations are delivered in Iowa City and throughout the region.

Courses

For Doctor of Pharmacy Students

Pharmaceutics

046:050 Pharmacy Practice I 2 s.h.
Prescription interpretation, aseptic technique in the preparation of parenteral products, patient counseling, applications of drug information and law. Prerequisite: P1 standing.

046:051 Pharmacy Practice II 2 s.h.
Continuation of 046:050. Prerequisites: P1 standing and 046:050.

046:101 Pharmacy Projects 1-3 s.h.
Basic and applied research problems of pharmaceutical interest.

046:116 Pharmacy Practice Lab III 2 s.h.
Continuation of 046:116. Prerequisite: 046:116.

046:117 Pharmacy Practice Lab IV 2 s.h.
Continuation of 046:117. Prerequisite: 046:117.

046:118 Pharmacy Practice Lab V 2 s.h.
Continuation of 046:118. Prerequisite: 046:118.

046:119 Pharmacy Practice Lab VI 2 s.h.
Continuation of 046:119. Prerequisite: 046:119.

046:120 Advanced Compounding 3 s.h.
Conceptual and practical framework for resolving therapeutic issues in compounding pharmacy practice; design and preparation of compounded medications using current quality assurance methods, legal aspects of compounding, development and marketing of a compounding practice. Prerequisites: 046:051 and 046:124.

046:123 Pharmaceutics I: Solutions 4 s.h.
Application of physical and chemical principles to formulation, preparation of liquid dosage forms, including solution, collodion, ointments, emulsions. Prerequisite: P1 standing.

046:124 Pharmaceutics II: Solids and Semi-solids 4 s.h.
Properties of solids, formulation, preparation, evaluation of solid dosage forms. Prerequisite: P1 standing.

046:138 Pharmacokinetics and Biopharmaceutics 3 s.h.
Qualitative and quantitative description of kinetics of drug absorption, distribution, and elimination, including physiological factors that influence each process; adjustment of dosing regimens for optimizing therapeutic drug levels in the body. Prerequisites: 046:123 and 046:124.

046:142 Contemporary Issues in Pharmacy Practice 2 s.h.
Contemporary issues in pharmacy practice. Repeatable.

046:144 Elective: Insurance and Reimbursement 2-3 s.h.
Insurance and reimbursement for prescription drugs and pharmacist services; related policy issues.
046:145 Therapeutic and Diagnostic Systems 2 s.h.
Design, policy, use of individual and novel dosage forms; applications of physical pharmacy and biopharmaceutical principles to dosage form performance; diagnostics and mechanical delivery systems. Prerequisites: P4 standing, and 046:138 or consent of instructor.

046:172 Pharmacometrics 2 s.h.
Introduction to the use of statistics. Prerequisite: P4 standing.

046:173 Parenteral Products and Technology 2 s.h.
Knowledge and application of parenteral products and the technology used to compound and administer them. Prerequisites: 046:051 and 046:123.

046:174 Pharmacy Service Development 3 s.h.
Issues and approaches used to develop pharmacy services; planning, service design, payment, promotion, quality improvement. Prerequisite: P3 standing or consent of instructor.

046:176 Immunization Theory and Practice 2 s.h.
Preparation for immunizing routine immunizations safely and responsibly under specific order of a prescriber; preparation for administering vaccinations under protocol according to the Iowa Board of Pharmacy and Medical Examiners. Prerequisites: P3 standing and 046:159.

046:177 Emerging Issues in Infectious Diseases 2-3 s.h.
Current issues related to infectious diseases; unusual pathogens such as Ebola, tropical medicine, bioterrorism, resistance, travel medicine, epidemiology.

Medicinal and Natural Products

Chemistry

046:128 Medicinal and Natural Products Chemistry I: Biotechnology and Chemistry 4 s.h.
First of a three-semester sequence; organic and inorganic medicinal and therapeutic agents of natural and synthetic origin; physical, chemical, and biochemical properties as they relate to medicinal and therapeutic effects; comparative biological activity and toxicity; detoxification mechanisms; functional group chemistry; nomenclature; chemistry of radiodiagnostic and therapeutic agents; introduction to biopharmaceutical analysis. Prerequisites: P1 standing, 004:122, 061:112, and 096:162 or equivalents.

046:131 Medicinal and Natural Products Chemistry II: Pharmacodynamic Agents 4 s.h.
Prerequisites: P2 standing and 046:128.

046:132 Medicinal and Natural Products Chemistry III: Medicinal Neurochemistry 4 s.h.
Prerequisites: P2 standing, 046:128, and 046:131.

Clinical and Administrative Pharmacy

046:001 Community Service: Introductory Practice Experience I 1 s.h.
Fundamental elements of communication, teamwork, and caring in the health professional role. Repeatabl. Prerequisite: P1 standing.

046:002 Basics of Community Pharmacy: Introductory Practice Experience II 1 s.h.
Prerequisite: P2 standing and 046:001.

046:003 Introductory Practice Experience III 1 s.h.
Experience observing and exploring fundamental elements of pharmacist’s role, including patient care, communication, decision making, critical thinking, teamwork; one semester part-time. Repeata ble. Prerequisite: 046:051.

046:005 Dean’s Pharmacy Forum I 1-2 s.h.
Contemporary issues in pharmacy practice, pharmacy education, and health care.

046:006 Dean’s Pharmacy Forum II 1-2 s.h.
Contemporary issues in pharmacy practice, pharmacy education, and health care.

046:011 PDAs and Electronic Drug Information Sources 3 s.h.
Introduction to Palm OS PDA and web-based drug information sources for pharmacy students.

046:016 Pharmaceutical Computer Systems 2 s.h.
Fundamentals of data storage and retrieval for pharmacy information systems.

046:022 Pharmacy Honors Seminar 1 s.h.
Scientific, philosophical, economic, ethical issues of importance to the practice of pharmacy.

046:103 Introduction to Pharmacy Literature 1 s.h.
Basic concepts and information for analysis of clinical trials published in primary biomedical and pharmacy literature; beginning-level identification, comprehension, and evaluation of content, design, methods, intended outcomes, and statistical analysis reported in the literature. Prerequisite: P1 standing.

046:104 Pharmacy Law and Ethics 2 s.h.
Legal and moral aspects involved in the practice of pharmacy. Prerequisite: P1 standing.

046:105 Internal Medicine Elective (Complementary and Alternative Medicine) for Physician Assistant Students 2 s.h.
Prerequisite: P4 standing. Same as 096:182, 117:346.

046:106 Clinical Practice Skills I 1 s.h.
Exploration and development of professional skills required for delivery of patient care; patient assessment, clinical decision making, communication (written and oral), teamwork.

046:107 Clinical Practice Skills II 2 s.h.
Continuation of 046:106; development of professional skills required for delivery of patient care; patient assessment, clinical decision making, communication (written and oral), teamwork. Prerequisite: P2 standing.

046:108 Clinical Practice Skills III 2 s.h.
Continuation of 046:107; development of professional skills required for delivery of patient care; patient assessment, clinical decision making, communication (written and oral), teamwork. Prerequisite: P3 standing.

046:110 Clinical Practice Skills IV 2 s.h.
Continuation of 046:108; development of professional skills required for delivery of patient care; patient assessment, clinical decision making, communication (written and oral), teamwork. Prerequisite: P3 standing.

046:115 Clinical Pharmacy: Drug Literature Review and Evaluation 2 s.h.
Study design methods, drug information techniques and skills; skill development in critical analysis and evaluation of published reports of drug use and drug trials; assessment of validity of reports; trials and studies; assessment of generalizability of results to individual patients and patient groups; laboratory experience in biomedical literature analysis, evaluation.

046:121 Substance Abuse 3 s.h.
Themes and concepts in substance abuse and treatment; stimulants, depressants, alcohol, opiates, hallucinogens, steroids; drug abuse prevention and treatment, including dual diagnosis, from cradle to the grave.

046:125 Forensic Toxicology 3 s.h.
Pharmacology, pharmacokinetics, and pharmacodynamics of drugs of abuse, toxic drugs, and chemicals applied to the needs of the law. Prerequisites: 046:138, 071:181, and P3 standing.

046:130 Core Principles in Pharmaceutical Socioeconomics 3 s.h.
Organization and financing of the U.S. health care system, role of pharmacists in health care, patient influence on health care decisions. Prerequisite: a microeconomics course.

046:146 End of Life Care for Adults and Families 3 s.h.
Same as 096:147, 153:147.

046:149 Introduction to Therapeutics 2 s.h.
Treatment modalities that promote health and treat common diseases; common laboratory and diagnostic procedures used to diagnose and monitor diseases; basic types of adverse drug reactions. Prerequisite: P2 standing.

046:154 Endocrinology, Ophthalmology, Women’s and Men’s Health Therapeutics 2 s.h.
Pharmacotherapy for endocrine and ophthalmologic disorders; review of disorders, treatment goals, treatment plans, patient counseling, monitoring of patient outcomes. Prerequisite: P2 standing.

046:155 Respiratory Therapeutics 2 s.h.
Pharmacotherapy for respiratory disorders; review of disorders, treatment goals, treatment plans, patient counseling, monitoring of patient outcomes. Prerequisite: P2 standing.

046:156 Cardiovascular Therapeutics 2 s.h.
Pharmacotherapy for cardiovascular disorders; review of disorders, treatment goals, treatment plans, patient counseling, monitoring of patient outcomes. Prerequisite: P2 standing.

046:158 FEN, GI, and Renal Therapeutics 2 s.h.
Pharmacotherapy for endocrine and ophthalmologic disorders; gastrointestinal and renal diseases; review of disorders, treatment goals, treatment plans, patient counseling, monitoring of patient outcomes. Prerequisite: P3 standing.

046:159 Rheumatology, Immunology, Hematology, Oncology, and Transplantation Therapeutics 2 s.h.
Pharmacotherapy for rheumatology, immunology, hematology, oncology, and transplantation; review of disorders, treatment goals, treatment plans, patient counseling, monitoring of patient outcomes. Prerequisite: P3 standing.

046:164 Neurology/Psychiatry Therapeutics 2 s.h.
Pharmacotherapy for psychiatric and neurologic disorders; review of disorders, therapeutic goals, treatment plans, patient counseling, monitoring of patient outcomes. Prerequisite: P3 standing.

046:165 Infectious Disease Therapeutics 2 s.h.
Pharmacotherapy for infectious disorders; review of disease, therapeutic goals, treatment plans, patient counseling, monitoring of patient outcomes. Prerequisite: P3 standing.

046:170 Clinical Pharmacokinetics 3 s.h.
Application of pharmacokinetics to the clinical setting. Prerequisite: P3 standing.

046:171 Nonprescription Pharmacotherapy 2 s.h.
Introduction to nonprescription medications; development of patient assessment and consultation skills; understanding of pharmacist’s role in patient self-care.

046:195 Clinical Professional Skills 1-2 s.h.
Topics vary. Prerequisite: P4 standing.

046:198 Elective: Hospital Pharmacy Practice Management 2 s.h.
Practice management issues; organizational structure, service delivery models, drug policy, drug and pharmacy costs, use of technology and informatics, supervision, quality improvement.

046:253 Elective: Economics and Treatment Choice 2 s.h.
Introduction to patient and population pharmacoeconomic modeling; clinical decision, cost-minimization, cost-effectiveness, cost-utility, and cost-benefit analysis.

046:344 PSE Selective: Insurance and Reimbursement 2 s.h.
Insurance and reimbursement for prescription drugs and pharmacist services; related policy issues. Prerequisite: P3 standing.

046:353 PSE Selective: Economics and Treatment Choice 2 s.h.
Patient and population pharmacoeconomic modeling; clinical decision analysis, cost minimization analysis, cost-effectiveness analysis, cost-utility analysis, cost-benefit analysis. Prerequisite: P3 standing.

046:356 PSE Selective: Marketing and Healthcare 2 s.h.
Marketing concepts and principles applied to health care, especially pharmacy and pharmaceuticals; marketing management, patient behavior, marketing plan, marketing mix, promotion. Prerequisite: P3 standing.

046:398 PSE Selective: Hospital Pharmacy Practice Management 2 s.h.
Organizational structure of pharmacy departments in hospital and health care systems; models for delivery of pharmaceutical care; pharmacist’s role in drug policy decision making; provision of drug information; clinical and distributive pharmacy services; control of pharmacy and pharmacy costs; use of information technology and automation for service delivery; supervisory management, quality improvement. Prerequisite: P3 standing.

Professional Experiences

046:161 Drug Information Rotation 2 s.h.
Drug information knowledge applied to service and research projects. Prerequisites: P4C standing and consent of instructor.

046:175 Clinical Investigation 1-4 s.h.
Development of research skills through completion of a research project.

046:178 Hospital Pharmacy Rotation 4 s.h.
Practicum experience in components of hospital pharmacy; emphasis on hospital organization, inpatient and outpatient services, IV additives, unit dose, clinical services, many sites available. Prerequisites: P4C standing and consent of instructor.
046:179 Community Pharmaceutical Care Rotation 4 s.h.
Delivery of pharmaceutical care in the community pharmacy and ambulatory primary care environment. Prerequisite: P4C standing.

046:180 Medicine Rotation arr.
Advanced application of therapeutic skills necessary for the pharmacist's role in the management of patients in various medical settings.

046:181 Family Practice Rotation arr.
Selected topics, including nonlinear curve fittings. Prerequisite: consent of instructor.

046:182 Pediatrics Rotation arr.
Advanced clinical practice in pediatric care settings such as internal medicine clinics, diabetes education centers, and other specialty clinics.

046:183 Community Pharmacy Rotation 4 s.h.
Practice in community pharmacy, drug distribution, communication with patients, and management functions.

046:184 Psychiatry Rotation arr.
Advanced application of clinical pharmacotherapeutics and their implications in the care of patients with mental health disorders.

046:185 Neurology Rotation arr.
Lecture and advanced clinical practice of pharmacotherapy related to neurological diseases.

046:186 Surgery Rotation arr.
Advanced application of therapeutic skills necessary for the management of surgical patients.

046:187 Clinical Nuclear Pharmacy Rotation arr.
Advanced clinical and theoretical instruction in the use of radiopharmaceuticals and radiopharmaceutical drug interactions.

046:188 Cognitive Behavioral Therapy Rotation arr.
Lecture and advanced clinical practice of mastery of specific treatment in specific settings.

046:189 Pharm.D. Elective Rotation arr.
Advanced practice experience in a nontraditional setting.

046:190 Long Term Care Rotation 4 s.h.
Practice in consulting and providing services to varied long-term care settings, including assisted living facilities.

046:191 Home Health Care Rotation 4 s.h.
Team approach to delivery of home health care; total parenteral nutrition, chemotherapy, intravenous antibiotics, lab analysis, hospice care, pain management.

046:192 Managed Care Rotation 4 s.h.
Practice in providing pharmaceutical care in managed care settings.

046:193 Ambulatory Care Rotation 4 s.h.
Pharmaceutical care in outpatient settings such as internal medicine clinics, diabetes education centers, and other specialty clinics.

046:194 Research Rotation 4 s.h.
Research experience in basic pharmaceutical or clinical research; proposal, study design, data collection, and analysis, presentation of results.

046:195 Teaching Rotation 4 s.h.
Teaching experience in the teaching of pharmacy, pharmacy administration, research, or other professional areas.

046:196 Ambulatory Care Rotation 4 s.h.
Pharmaceutical care in outpatient settings such as internal medicine clinics, diabetes education centers, and other specialty clinics.

046:197 Hematology/Oncology Rotation 4 s.h.
Drug therapy management of adult oncology patients and patients with hematologic malignancies, aplastic anemia, sickle cell disease, and hemophilia.

046:198 Research Rotation 4 s.h.
Research experience in basic pharmaceutical or clinical research; proposal, study design, data collection, and analysis, presentation of results.

For Graduate Students

Pharmaceutics

046:148 Pharmacokinetics and Pharmacodynamics 3 s.h.
Kinetics of drug absorption, distribution, and elimination, including development of mathematical models. Prerequisites: two semesters of calculus and one semester of statistics, or consent of instructor.

046:157 Quantitative Research Methods in Pharmacy 4 s.h.
Lecture and laboratory; collection and interpretation of analytical data; instrumental analysis as applied to pharmaceutical quality control, separation techniques.

046:202 Pharmacy: Selected Topics 1-4 s.h.
Recent advances and contemporary research in pharmaceuticals. Repeatable.

046:203 Advanced Psychopharmacotherapeutics 2 s.h.
Drug treatment of psychiatric disorders involving psychosis and depression. Prerequisite: P4C standing.

046:204 Advanced Psychopharmacotherapeutics II 2 s.h.
Drug treatment of psychiatric disorders involving mania, anxiety disorders, drug-induced psychoses, substance abuse treatment, childhood depression, attention deficit hyperactivity disorder.

046:206 Stability of Pharmaceuticals 3 s.h.
Mechanisms of degradation of pharmaceuticals; prediction of shelf life of pharmaceuticals, stabilization. Prerequisite: 046:132.

046:207 Polymers in Pharmaceuticals 3 s.h.
Polymer science, its implications in pharmaceutical sciences, polymers useful as excipients in design of controlled- and/or sustained release products.

046:225 Product Development 3 s.h.
Application of physicochemical principles to formulation and design of pharmaceutical dosage forms.

046:229 Advanced Pharmacokinetics and Pharmacodynamics 2 s.h.
Selected topics, including nonlinear curve fittings. Prerequisite: 046:148.

046:231 Pharmacy Seminar 1-2 s.h.
Repeatable.

046:232 Drug Delivery: Principles and Applications 3 s.h.
Design and development of drug delivery systems; mathematical analysis of dosage form performance; applications of advanced technology in emerging systems.

046:233 Pharmacy: Research arr.
Repeatable.

046:235 Equilibria Processes 3 s.h.
Equilibria pertaining to ionic systems, complexation, partitioning, solubility. Prerequisite: 046:131.

046:236 Surface Phenomena 3 s.h.
Behavior of matter in phase boundaries, especially adsorption processes at liquid-solid and vapor-solid interfaces. Prerequisite: 046:131.

046:237 Transport Phenomena 3 s.h.
Diffusion and mass transport phenomena related to pharmaceutical systems. Prerequisite: 046:131.

Medicinal and Natural Products Chemistry

046:135 Perspectives in MCNP Research 1 s.h.
Contemporary research in medicinal chemistry and natural products.

046:136 Medicinal Chemistry of CNS Active Agents 3 s.h.
Concepts for understanding the chemistry and pharmacology of agents on the central nervous system. Prerequisite: second-semester organic chemistry.

046:137 Enzymatic Basis of Drug Metabolism 3 s.h.
Current literature on catalytic and physical properties, distribution, and substrate specificity of enzymes involved in mammalian drug metabolism. Prerequisites: 046:122 and 099-163, or consent of instructor.

046:150 Synthetic Strategies in Medicinal Chemistry 3 s.h.
Modern chemical methods for construction of carbon-carbon bonds commonly used in synthesis of natural products; strategic disconnections for the synthesis of these molecules. Prerequisites: 004:122 and 046:132.

046:211 Total Synthesis of Natural Products 3 s.h.
Total synthesis of natural products; use of strategies, tactics, efficiency, selection of synthetic maneuvering. Prerequisite: consent of instructor.

046:215 Current Medicinal Chemistry 3 s.h.
Modern techniques used in drug discovery, important drug classes, their chemical mechanism of action. Prerequisite: 046:132 or consent of instructor.

046:217 Medicinal and Natural Products Chemistry Research arr.
Application of modern chromatographic and detection methods to the isolation, characterization, and quantification of drugs and macromolecules.

046:227 Medicinal and Natural Products Chemistry Seminar 1-2 s.h.
Recent research in pharmaceutical administration. Repeatable.

046:275 Perspectives in Biocatalysis 1 s.h.

Clinical and Administrative Pharmacy

046:147 Introduction to Research Methods 3 s.h.
Scientific inquiry, experimental design, data collection, statistical methods used in the study of health services and clinical investigations; focus on understanding the research process and evaluating published studies. Repeatable.

046:213 Pharmaceutical Economics: Seminar 1-2 s.h.
Recent research in pharmacy administration. Repeatable.

046:243 Clinical Hospital Pharmacy: Research arr.
Recent research in pharmacy administration. Repeatable.

046:244 Gender Analysis of Medications 2 s.h.
The science of health differences between men and women and how men and women respond differently to medications; sex-based biology, gender framework for health research and practice; how dosing should or should not be changed.

Recent research in pharmacy administration. Repeatable.

046:255 Elective: Social Pharmacy 2-3 s.h.
Behavioral and social aspects of drug use in society, emphasis on therapeutic uses of medications, pharmaceutical care systems, and related health behavior.

046:256 Elective: Marketing and Healthcare 2 s.h.
Research on marketing's impact on delivery and consumption of health care, and on changes in marketing that result from evolution of health care systems. Prerequisite: graduate standing.

046:257 Foundation Literature in Pharmaceutical Economics arr.
Issues related to pharmacy administration, social and behavioral pharmacy, pharmacy education.

046:258 Advanced PSE Research Techniques I 3 s.h.
Application of advanced research methods (e.g., multiple regression, longitudinal data analysis, discrete dependent variable models, simultaneous equation models) to analysis of secondary databases within pharmaceutical socioeconomic research.

046:260 Models of Patient Behavior and Choice 3 s.h.
Theoretical models used to describe behavior and choice in pharmaceutical socioeconomic research; models from economics, health services research, health behavior, clinical decision making.

046:264 Models of Provider Behavior and Choice 3 s.h.
Theoretical background for study of provider decision making and behavior; models based on a classic economic approach, models used to study provider behavior.

046:280 Clinical Pharmacy Research Seminar 1-2 s.h.
Research by faculty, graduate students.

046:282 Advanced Pharmacokinetic/Pharmacodynamic Topics 2 s.h.
Basic concepts; computer fitting. Prerequisite: 046:170.

046:284 Research Design for Clinical Studies 2 s.h.
Research design and writing of clinical trials. Prerequisite: consent of instructor; PHEALTH.
College of Public Health

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Dean: James A. Merchant
Associate dean, faculty affairs and research:
Leon F. Burmeister
Associate dean, education and student affairs:
Associate dean, public health practice:
Christopher Atchison
Associate dean, external relations: Larry Prybil
Associate dean, diversity:
Assistant dean and director, M.P.H. program:
Graduate degrees: M.H.A., M.P.H., M.S., Ph.D.
Graduate nondegree program: certificate in Public Health
Web site: http://www.public-health.uiowa.edu
The College of Public Health, established in 1999, is a partner with the Carver College of Medicine and the Colleges of Dentistry, Nursing, and Pharmacy in striving to improve human health and well-being. Consistent with the interdisciplinary traditions of public health, the college also collaborates with non-health science colleges across the University and with other Iowa Regents institutions, state and local agencies, and the private sector.

The emphasis on a population-based approach to health is a distinguishing feature of public health and of the college. For public health practitioners—a wide range of professionals including physicians, nurses, dentists, pharmacists, social workers, nutritionists, environmental scientists, health educators, and health service administrators—the primary focus is on the health of entire communities rather than individual patients. Tools commonly used by public health professionals to improve and enhance quality of life include analytical methods to identify, describe, and monitor the health of communities and populations at risk; education and prevention programs, methods of assuring access to appropriate and cost-effective care; and formulation of sound public policies.

The public health approach has led to many important health improvements over the past century. Vaccination campaigns, improved sanitation, fluoridation of drinking water, and efforts to reduce tobacco use are among the most recognizable public health initiatives. Public health programs also have led to safer workplaces, reduction of deaths from coronary heart disease and stroke, improved motor vehicle safety, and creation of effective health systems to provide care to those who need it. In the future, public health professionals will play an important role worldwide in seeking better approaches to complex issues such as quality of life for the elderly, drug and alcohol abuse, teen pregnancy, new and emerging infectious diseases, food safety, effects of bioterrorism, and nutrition.

The College of Public Health provides educational opportunities to students campuswide. In addition to training and educating public health students, the college welcomes students from the Tippie College of Business, the Carver College of Medicine, and the Colleges of Dentistry, Education, Engineering, Law, Nursing, and Pharmacy who enroll in public health classes. Undergraduate students in the College of Liberal Arts and Sciences and graduate students from programs such as anthropology, microbiology, and statistics also register for public health courses. Collegiate faculty and staff members as well as graduate and postdoctoral students contribute to teaching and research activities throughout the health sciences campus and provide services to Iowa and the nation. Partnerships for teaching and research extend across the campus. This background provides a rich array of educational opportunities.

The college includes the Departments of Biostatistics, Community and Behavioral Health, Epidemiology, Health Management and Policy, and Occupational and Environmental Health, and a graduate program in statistical genetics. It offers four graduate degrees: Master of Health Administration (M.H.A.), Master of Public Health (M.P.H.), Master of Science (M.S.), and Doctor of Philosophy (Ph.D.). Majors include public health, biostatistics, community and behavioral health, epidemiology, occupational and environmental health, health management and policy, and statistical genetics.

The college is accredited by the Council on Education for Public Health (CEPH), the accrediting body for the nation’s schools and colleges of public health. Two programs in the college currently are accredited: The industrial hygiene program is accredited by the Accreditation Board for Engineering and Technology (ABET)/American Board of Industrial Hygiene (ABIH), and the Master of Health Administration and the Ph.D. in health management and policy are accredited by the Accrediting Commission on Education for Health Services Administration (ACEHSA).

Certificate in Public Health

The college offers a certificate program to improve public health practice and public health workforce capacity in Iowa and the upper Midwest. The Certificate in Public Health is directed primarily toward individuals in public health practice, those in the workforce, and those interested in acquiring a basic knowledge of public health practice. It is offered via distance education.

All certificate courses are offered via the Internet. Some are offered on the University of Iowa campus and in the College of Public Health Summer Institute. Certificate students must successfully complete the program’s 12 s.h. of required course work within five years and must maintain a cumulative g.p.a. of at least 2.75 throughout the program. Students must have access to a computer and the Internet.

The following courses are required.

Both of these:
170:099 Evidence-Based Public Health Methods 3 s.h.
170:101 Introduction to Public Health 3 s.h.

Two of these:
172:101 Introduction to Health Care System 3 s.h.
174:102 Introduction to the U.S. Health Care System 3 s.h.
175:197 Environmental Health 3 s.h.

Applicants to the certificate program must have completed at least 60 s.h. of postsecondary education course work and have a cumulative g.p.a. of at least 2.50. Students who have earned a bachelor’s degree may apply for admission. Applicants should submit a statement of their career goals and their reasons for applying to the program and two letters of reference.

Application deadlines are March 15 for summer session, July 1 for fall semester, and December 1 for spring semester.

Admission

Detailed information about graduate study at The University of Iowa, including application requirements and procedures, is provided in the Manual of Rules and Regulations of the Graduate College; see the Graduate College section of the Catalog.

Each department in the College of Public Health has a committee that selects candidates for admission. Admission criteria usually include a satisfactory cumulative grade-point average; Graduate Record Examination scores; and, for international applicants, scores on the Test of English as a Foreign Language (TOEFL); references; and résumés. Other evaluation criteria include oral and on-campus interviews, written statements, special emphasis on science and math courses, and a match of available faculty mentors with student interests.

Application deadlines vary and are published by individual departments.

Nondegree Students

Individuals who meet departmental application requirements but do not want to work toward an advanced degree may be admitted on a nondegree basis at the college. Students who wish to register for one or two courses may do so if they meet all of the prerequisites for the courses, have the instructor’s consent, and/or apply for special student status in the Graduate College.

Faculty

The faculty of the College of Public Health includes members with single appointments in the college as well as those who have joint appointments in other colleges at the University, including the Carver College of Medicine and the Colleges of Dentistry, Engineering, Law, Liberal Arts and Sciences, Nursing, and Pharmacy. In addition, the college’s faculty includes adjunct members from Drake University, Iowa State University, the University of Northern Iowa, the Iowa State Department of Public Health, the Iowa State Hygienic Laboratory, the Iowa Heart Center (in Des Moines), University of Iowa Hospitals and Clinics, and the National Institutes of Health.

Specialized Laboratories

Laboratory facilities based in the College of Public Health provide researchers and students access to cutting-edge technologies for the study of occupational and environmental health.

The Inhalation Toxicology Facility (ITF), located at the Institute for Rural and Environmental Health on the Oakdale Campus, provides a full array of inhalation toxicology, aerosol science, and bioaerosol assay services. A primary focus of the ITF is the study of toxicants found in the agricultural environment and related exposure situations. The ITF is particularly well-equipped for studying organic dusts and bioaerosols.

The Biomechanics and Ergonomics Facility also located at the Institute for Rural and Environmental Health, is dedicated to the study of occupational injuries and illnesses. The facility has state-of-the-art electromyography and electromyographic instrumentation (including telemetry and data loggers), nerve conduction equipment, electromagnetic motion analysis.
systems, force platforms, and digital video analysis and production systems. It is used for job simulation studies and biomechanical analysis of occupational activities.

The Department of Epidemiology recently established an applied science laboratory to study emerging infectious diseases. This modern, 686 square-foot wet laboratory is well suited for viral culture, identification, and molecular study. The laboratory's initial focus is upon adenovirus, influenza, West Nile virus, and the newly described human metapneumovirus. This laboratory is one of the few in the world that can identify, sequence, and genotype human adenoviruses. It is also one of the few laboratories that can detect the newly described human metapneumovirus.

Resources and Affiliations

More than 25 centers and institutes are located in the College of Public Health. Students may explore opportunities for involvement with any of them. For a complete listing of centers and institutes, see the college's web site.

Collegiate programs are enhanced through affiliations with the Iowa Department of Public Health; the University Hygienic Laboratory—the state's only public health laboratory; University of Iowa Hospitals and Clinics—the state's tertiary health care facility; the Carver College of Medicine and the Colleges of Dentistry, Nursing, and Pharmacy; the University of Iowa Clinical Research Center; the Department of Internal Medicine's division of clinical epidemiology; the Hazardous Substance Research Center; the Center for Global and Regional Environmental Research; the Center for the Health Effects of Environmental Contamination; and the Environmental Engineering and Science Program in the Department of Civil and Environmental Engineering. In addition, the college enjoys many strong relationships with private sector employers in the state of Iowa and the Midwest, which provide experiential learning opportunities for students.

Facilities

The college's administrative offices are housed in the General Hospital, on the University's health sciences campus. Faculty offices are located in the General Hospital, Westlawn, the Jefferson Building, Schaeffer Hall, MacLean Hall, the Medical Education Building, the Carver College of Medicine Administration Building, John Colloton Pavilion, Oakdale Hall, and the Institute for Rural and Environmental Health (on the Oakdale Campus). Specialized laboratories also are located on the Oakdale campus.

Eight student computer laboratories are housed at the college. The Health Sciences Computer Lab hosts 33 desktop PCs, a color scanner, and a laser jet printer. The College of Public Health computer room hosts 10 PC workstations and a laser jet printer. Each of the college's departments provides computing facilities for its students.

More than 55 software packages are available for student use, most without charge. Software includes Microsoft Office products, SAS, and S-.

Some specialty labs are equipped with RedHat Linux and are loaded with R, Macanova, Xlispstat, Mathematica, and other software.

The college holds special collections of journals unique to The University of Iowa.

## MASTER OF PUBLIC HEALTH (M.P.H.)

**Director:** J. Jackson Barnett  
**Graduate degree:** M.P.H.  
**Web site:** http://www.public-health.uiowa.edu/index.html

The Master of Public Health is recognized as the primary professional degree in public health. The objective of Iowa's M.P.H. program is to provide education and practical training in public health to students who will be leaders in their respective communities. The program is appropriate for individuals who already have professional experience and/or training in public health as well as for those whose expertise lies outside of public health.

The M.P.H. is awarded by the University of Iowa Graduate College. Combined degree programs for medical students and M.S.N. students are available. See “Joint M.D./M.P.H. Program” and “Joint M.S.N./M.P.H. Program” in this section of the Catalog. A combined M.P.H./D.V.M. program is offered in conjunction with the College of Veterinary Medicine at Iowa State University. Contact the Master of Public Health program for information.

### Master of Public Health

The M.P.H. is offered with six subtracks: biostatistics, community and behavioral health, ergonomics, occupational and environmental health, policy and administration, and public health epidemiology. Students also may pursue a general M.P.H., for which they must define a focused area of study: aging studies; clinical investigation; global health; maternal child and family health; or nutrition and exercise. The degree requires 39-48 s.h., depending on the subtrack.

Degree requirements include a core course in public health practice and in each of the five core disciplines of public health (epidemiology, biostatistics, environmental health, health administration, and social and behavioral sciences); a bioscience course (or an additional elective course); a practicum; a set of content-specific required courses; and a set of content-specific electives. A written report and oral presentation related to the practicum constitutes the final examination.

All M.P.H. students complete the course work listed under "Common Requirements." In addition, each student completes the course work listed for his or her chosen subtrack.

### Common Requirements

The following course work is required for all M.P.H. students. Students must earn a B- or higher in each of the core courses and maintain a cumulative g.p.a. of at least 3.00 in the core courses.

### CORE COURSES

- 170:101 Introduction to Public Health 3 s.h.
- 171:161 Introduction to Biostatistics (biostatistics subtrack students must substitute 171:201 for 4 s.h.) 3 s.h.
- 172:101 Introduction to Health Promotion and Disease Prevention 3 s.h.
- 173:140 Epidemiology I: Principles 3 s.h.
- 175:197 Environmental Health 3 s.h.

### BIOSCIENCE REQUIREMENT

All students, except those in the community and behavioral health subtrack, take one of the following. Students who already have completed equivalent course work may substitute an additional elective course for the bioscience requirement. Consult the M.P.H. web site for current information about this requirement.

- 069:133 Introduction to Human Pathology 3 s.h.
- 090:114 Human Pathophysiology: Organ Systems 3 s.h.
- 090:115 Human Pathophysiology: Cellular/Neurology/Immunology 3 s.h.
- 090:118 Pathophysiology (a GIS course) 3 s.h.

### PRACTICUM

The practicum is a fieldwork experience in which students show proficiency in applying academic principles in community settings. There are many practicum opportunities for M.P.H. students in Iowa and surrounding states; the college's Institute for Public Health Practice coordinates placements. The practicum is the culmination of the M.P.H. program.

Students must have completed or be enrolled in all six core courses before registering for the practicum. A final written report and an oral presentation are required. The practicum, final report, and oral presentation constitute the final examination for the M.P.H.

- 170:299 M.P.H. Practicum Experience 3 s.h.

### Biostatistics Subtrack

The biostatistics subtrack focuses on application of biostatistical methods to public health and biomedical sciences, and applications of methodology for design and analysis of research investigations in the health sciences. It provides fundamental training in the public health sciences, core biostatistical theory, and core biostatistical methods vital for health science investigations. Graduates of the program are prepared for work as statistical consultants and data analysts for public health projects.

Applicants to the biostatistics subtrack have a bachelor's degree or equivalent in the biological, mathematical, or physical sciences. Applicants should have mathematics training in methods and techniques of single variable and
multivariable differential and integral calculus, and in linear algebra. They also should be competent in at least one computer language, preferably FORTRAN or C.

Applicants with deficiencies in any of these areas may apply for admission and make up the deficiencies during the first year of graduate study. The following University of Iowa courses provide training at the required level.

- 22M:025 Calculus I (4 s.h.)
- 22M:026 Calculus II (4 s.h.)
- 22M:027 Introduction to Linear Algebra (4 s.h.)
- 22M:028 Calculus III (4 s.h.)

The biostatistics subtrack requires 47 s.h. In addition to the course work listed under “Common Requirements,” the following courses are required.

**REQUIRED COURSES**

All of these (20 s.h.):
- 22S:153-22S:154 Mathematical Statistics I-II (6 s.h.)
- 171:173 Intermediate Design of Sample Surveys (3 s.h.)
- 171:201-171:202 Biostatistical Methods I-II (171:201 is a core course for the biostatistics track) (8 s.h.)
- 171:241 Statistical Methods in Epidemiology (3 s.h.)

**ELECTIVES**

Students choose 6 s.h. from the following (or 9 s.h. if they substitute an elective for the biostatistics requirement).
- 22S:138 Bayesian Statistics (3 s.h.)
- 22S:161 Applied Multivariate Analysis (3 s.h.)
- 22S:255 Linear Models (4 s.h.)
- 171:164 Research Data Management (3 s.h.)
- 171:242 Applied Survival and Cohort Data Analysis (3 s.h.)
- 171:261 Survival Data Analysis (3 s.h.)
- 171:262 Analysis of Categorical Data (3 s.h.)
- 171:264 Longitudinal Data Analysis (3 s.h.)
- 171:266 Statistical Methods in Clinical Trials (3 s.h.)
- 171:267 Intervention and Clinical Trials (3 s.h.)
- 185:274 Theory of Statistical Genetics (3 s.h.)

**Community and Behavioral Health Subtrack**

The community and behavioral health subtrack prepares public health practitioners for a variety of positions related to community development, health program implementation, and health education. Students learn how to design, implement, and evaluate evidence-based interventions directed toward identified public health problems in populations. A bachelor's degree in the social and behavioral sciences is good preparation for this program, but current students come from a variety of educational backgrounds. Preference is given to applicants who have professional experience or clinical background.

The community and behavioral health subtrack requires 41 s.h. In addition to the course work listed under “Common Requirements,” the following courses are required.

**REQUIRED COURSES**

At least 12 s.h. from these:
- 172:106 Designing and Implementing Interventions (3 s.h.)
- 172:130 Social Determinants of Health (3 s.h.)
- 172:150 Health Behavior and Health Education (3 s.h.)
- 172:181 Evaluation I: Theory and Application (3 s.h.)
- 172:183 Qualitative Research for Public Health (3 s.h.)
- 172:240 Health Communication (3 s.h.)

**ELECTIVES**

At least 5 s.h. from these (or 8 s.h. if an elective is substituted for the biostatistics requirement):
- 172:110 Community Development in Public Health (3 s.h.)
- 172:115 Community Preventive Programs and Services (2 s.h.)
- 172:122 Maternal, Child, and Family Health (3 s.h.)
- 172:125 American Indian Health (3 s.h.)
- 172:131 Anthropology and International Health (3 s.h.)
- 172:133 The Anthropology of Women’s Health (3 s.h.)
- 172:144 Physician-Patient Communication (3 s.h.)
- 172:161 Substance Abuse and Mental Health (3 s.h. arr.)
- 172:170 Special Topics (3 s.h. arr.)
- 172:182 Communicating With the Community (3 s.h.)
- 172:232 Persuasion and Health (3 s.h.)
- 172:246 Health Communication Campaigns (3 s.h.)
- 172:270 Independent Study in Community and Behavioral Health (arr.)
- 172:271 Research in Community and Behavioral Health (arr.)
- 172:282 Evaluation II: Design and Methods (3 s.h.)

**Ergonomics Subtrack**

The ergonomics subtrack takes advantage of interdisciplinary faculty strengths in the Colleges of Public Health and Engineering and the Carver College of Medicine. Ergonomics students gain a thorough understanding of workplace physical environments that contribute to musculoskeletal injuries and illness. They also acquire knowledge of engineering and administrative methods to control workplace risk factors. The program prepares students for work in industry and government agencies, as well as for further academic training.

The ergonomics subtrack requires 39 s.h. In addition to the course work listed under “Common Requirements,” the following courses are required.

**REQUIRED COURSES**

All of these (15 s.h.):
- 174:228 Cost Effectiveness and Decision Analysis (3 s.h.)
- 172:192 Occupational Safety (3 s.h.)
- 172:231 Industrial Hygiene I: Recognition (3 s.h.)
- 172:234 Industrial Hygiene II: Application (3 s.h.)
- 172:253 Epidemiology of Occupational Injuries (3 s.h.)

**OCCUPATIONAL AND ENVIRONMENTAL HEALTH SUBTRACK**

The occupational and environmental health subtrack provides students with a broad perspective on public health and career preparation for a variety of professional positions in occupational and environmental health. The program is appropriate for students who have graduate-level professional degrees or public health experience.

The occupational and environmental health subtrack requires 39 s.h. In addition to the course work listed under “Common Requirements,” the following courses are required.

**REQUIRED COURSES**

- 175:180 Occupational and Environmental Health Seminar (1 s.h.)
- Courses from the Department of Occupational and Environmental Health not already listed, or other approved courses (14–17 s.h.)

**POLICY AND ADMINISTRATION SUBTRACK**

The policy and administration subtrack focuses on advanced planning and program evaluation skills, including development of objectives for a health system, articulation of the steps required to meet those objectives, and evaluation of whether objectives have been met. Graduates of the program find positions in federal and state government, and in health agencies. A variety of academic backgrounds are appropriate preparation for this program, including business, liberal arts and sciences, and the health professions.

The policy and administration subtrack requires 40 s.h. In addition to the course work listed under “Common Requirements,” the following courses are required.

**REQUIRED COURSES**

One of these:
- 174:201 Health Care Management (3 s.h.)
- 174:203 Strategic Planning and Marketing (if 174:201 is waived) (3 s.h.)

One of these:
- 076:165 Introduction to Program Evaluation (3 s.h.)
- 172:181 Evaluation I: Theory and Applications (3 s.h.)

One of these:
- 172:412 Health Economics I (3 s.h.)
- 174:228 Cost Effectiveness and Decision Analysis (3 s.h.)
All of these:

174:214 Financial Accounting for Health Care Organizations 3 s.h.
174:223 Seminar in Health Care Ethics 2 s.h.
174:243 Introduction to Health Policy: Process and Context 3 s.h.

**ELECTIVES**

Students choose a minimum of 8 s.h., with one course selected from each of the following categories.

**Administration**

06N:215 Corporate Financial Reporting 3 s.h.
06N:225 Managerial Finance 3 s.h.
174:203 Strategic Planning and Marketing 3 s.h.
174:206 Leadership in Health Care Organizations 3 s.h.
174:208 Health Services Information Systems 2-3 s.h.
174:212 Health Economics I 3 s.h.
174:213 Health Economics II 3 s.h.
174:220 Advanced Topics in Managed Care 3 s.h.
174:224 Human Resources for Health Organizations 2-3 s.h.
174:228 Cost Effectiveness and Decision Analysis 3 s.h.

**Policy**

030:210 American Politics 4 s.h.
091:261 Health Law 3 s.h.
102:221 Poverty, Planning, and Public Policy 3 s.h.
174:140 Mental Health Services and Policy I 3 s.h.
174:217 Health Insurance and Managed Care 3 s.h.
174:242 Federalism and Health Policy 3 s.h.
175:252 Theories of Environmental Policy and Assessment 3 s.h.

**Public Health Epidemiology Subtrack**

The public health epidemiology subtrack focuses on fundamental epidemiological concepts and methods. It provides training in the use of public health data and methods for disease assessment and in methods for evaluating the need and outcome of programs and interventions.

Graduates of the program work in public health departments and other health care settings.

The public health epidemiology subtrack requires 39 s.h. In addition to the course work listed under “Common Requirements,” the following courses are required.

**REQUIRED COURSES**

All of these (10 s.h.):

- 171:162 Design and Analysis of Biomedical Studies 3 s.h.
- 173:145 Public Health Data 2 s.h.
- 173:160 Intro to Epidemiologic Data Analysis with Computer 2 s.h.
- 173:240 Epidemiology II: Advanced Methods 3 s.h.

**ELECTIVES**

Students must complete at least 3 s.h. from these or 8 s.h. if an elective is substituted for the bioscience requirement:

- 171:163 Intro to the Design of Sample Surveys 3 s.h.
- 171:241 Statistical Methods in Epidemiology 3 s.h.
- 171:242 Applied Survival and Cohort Data Analysis 3 s.h.
- 173:155 Diagnostic Microbiology for Epidemiologists 3 s.h.
- 173:225 Genetics and Epidemiology 4 s.h.
- 173:235 Nutritional Epidemiology 2 s.h.
- 173:236 Nutrition Intervention in Clinical Trials Research 2 s.h.
- 173:251 Injury Epidemiology 3 s.h.
- 173:253 Epidemiology of Occupational Injuries 3 s.h.
- 173:255 Epidemiology of Infectious Diseases 3 s.h.
- 173:256 Hospital Epidemiology 2 s.h.
- 173:260 Epidemiology of Chronic Diseases 3 s.h.
- 173:261 Epidemiology of Aging 1-2 s.h.
- 173:262 Neuroepidemiology 1 s.h.
- 173:263 Epidemiology of Reproductive Diseases 2 s.h.
- 173:265 Cardiovascular Disease Epidemiology 3 s.h.
- 173:267 Psychiatric Epidemiology 3 s.h.
- 173:270 Cancer Epidemiology and Control 3 s.h.
- 173:276 Health Care Utilization Outcomes 3 s.h.
- 173:280 Introduction to Health Care Organization and Policy 3 s.h.
- 173:285 Outcomes Research 2-3 s.h.
- 173:290 Intervention and Clinical Trials Research 3 s.h.
- 173:291 Pharmacoepidemiology 3 s.h.
- 174:251 Planning and Market Research for Health Systems 3 s.h.

**Joint M.D./M.P.H. Program**

Students pursuing an M.D. can earn the professional degree in public health through a joint degree program. Students who complete the program are granted both M.D. and M.P.H. degrees. They enjoy expanded career opportunities and are well prepared to apply the principles of medicine and public health in their work.

Interested students should apply to the Carver College of Medicine and to the Graduate College.

The M.P.H. requires a minimum of 39 s.h.

**M.P.H. CORE COURSES**

Total of 18 s.h. Students must earn a B- or higher on each course and a cumulative g.p.a. of at least 3.00 on all core courses. These courses may be repeated to achieve the standard.

All of these:

- 170:101 Introduction to Public Health 3 s.h.
- 171:161 Introduction to Biostatistics 3 s.h.
- 172:101 Introduction to Health Promotion and Disease Prevention 3 s.h.
- 173:140 Epidemiology I: Principles 3 s.h.
- 175:197 Environmental Health 3 s.h.

**CAPSTONE EXPERIENCE**

170:299 M.P.H. Practicum Experience (may be used as an M.D. elective) 3 s.h.

**BIOSCIENCE**

The bioscience requirement is met through the M.D. curriculum, but 3 s.h. must be replaced with an additional course.

**ADDITIONAL COURSE WORK**

Focus area 18 s.h.

Required College of Medicine courses:

- Biomedical ethics course 2 s.h.
- Health law course 1 s.h.
- Generalist core clerkships 6 s.h.

Required College of Public Health courses 9 s.h.

All 9 s.h. in the required College of Public Health course work must be in one of these areas: biostatistics, community and behavioral health, epidemiology, health management and policy, occupational and environmental health, or an approved M.P.H. focus area (e.g., global health; clinical investigation; nutrition and exercise; aging studies; maternal, child, and family health).

**TYPICAL SCHEDULE**

During the second year in medical school, they take a course in health law (1 s.h.). During the M.P.H. year, which typically falls between the second and third or the third and fourth years of medical school, M.D./M.P.H. students complete the balance of their M.P.H. core, public health focus courses, and their M.P.H. practicum (21 s.h.). During the third year of medical school, they complete the generalist core and biosthetics elective (8 s.h.).

**Joint M.S.N./M.P.H. Program**

The Master of Science in Nursing/Master of Public Health program prepares students for positions such as director of a public or community health agency, director of occupational health for a company or corporation, case manager for specific populations, information systems specialist for a public health agency or organization, or advanced nurse practitioner in a school, occupational, or public health organization.

Applicants to the M.S.N./M.P.H. program must hold a baccalaureate degree in nursing from an accredited program and have an undergraduate g.p.a. of at least 3.00 and satisfactory Graduate Record Exam (GRE) General Test scores.

Applicants must submit a formal application, complete transcripts from each undergraduate and graduate school they have attended, and three professional recommendations (University of Iowa recommendations forms are required).
Candidates must be accepted to the M.S.N. program before they can be accepted to the joint degree program. Each college's admission committee reviews each candidate independently.

The joint degree program requires a minimum of 60 s.h. of credit. Students earn 30 s.h. in core courses from both disciplines, 9-12 s.h. in a nursing focus, and 3 s.h. in an M.P.H. capstone project. A master's project or nursing portfolio is required. The remaining semester hours are earned in elective courses. Areas of emphasis are informatics, nursing administration, community health, and occupational health/ergonomics.

**M.P.H. CORE COURSES**

Students must earn a grade of B- or higher for each M.P.H. core course and must have a cumulative g.p.a. of at least 3.00 for all M.P.H. core courses. When necessary, a student may repeat a course to achieve the required grade or grade-point average.

- 170:101 Introduction to Public Health 3 s.h.
- 171:161 Introduction to Biostatistics 3 s.h.
- 172:101 Introduction to Health Promotion and Disease Prevention 3 s.h.
- 173:140 Epidemiology I: Principles 3 s.h.
- 175:197 Environmental Health 3 s.h.

One of these:
- 174:102 Introduction to the U.S. Health Care System 3 s.h.
- 174:200 Introduction to Health Care Organization and Policy 3 s.h.

**M.S.N. CORE COURSES**

- 096:206 Nursing Science and Inquiry 3 s.h.
- 096:208 Leadership for Advanced Nursing Practice 3 s.h.
- 096:209 Health Systems, Economics, and Policy 3 s.h.
- 096:263 Informatics in Nursing and Health Care 3 s.h.

**BIOSCIENCE**

The bioscience requirement is met in the nursing undergraduate curriculum.

**Joint Pharm.D./M.P.H. Program**

The joint Pharm.D./M.P.H. program helps students develop expertise in public health related to pharmacotherapy, health promotion, disease prevention, and medication safety. Graduates of the program may work in areas of interest common to pharmacy and public health, such as spread and treatment of disease, community health, and immunology; bioterrorism, terrorism, and preparedness; genetics; insurance; managed care; family and juvenile health; and protection of special populations. Employment opportunities are available in hospitals and clinics with health care providers; private practice; insurance and managed care organizations; local, county, state, and federal government; public health governmental agencies; and colleges and universities.

To enter the joint Pharm.D./M.P.H. program, applicants must be admitted to the Doctor of Pharmacy program in the College of Pharmacy and to the Master of Public Health program in the College of Public Health. Admission requirements include a bachelor's degree or a minimum of 120 s.h. of undergraduate course work; an undergraduate cumulative g.p.a. of at least 3.00; one semester each of college algebra and biology; transcripts of all college course work; scores (preferably at or above the national median) on the Graduate Record Exam or the Pharmacy College Admission Test (PCAT); and three professional recommendations (University of Iowa recommendation forms are required).

Candidates must be accepted to the Pharm.D. program before they can be accepted to the joint degree program.

**Requirements**

Students in the Pharm.D./M.P.H. program must complete M.P.H. core courses, practicum, and public health electives in addition to courses required for the Pharm.D. degree.

**M.P.H. CORE COURSES**

Students must earn a B- or higher on each core course and a cumulative g.p.a. of at least 3.00 on all core courses. Students may repeat core courses to achieve this standard.

All of these:
- 170:101 Introduction to Public Health 3 s.h.
- 171:161 Introduction to Biostatistics 3 s.h.
- 172:101 Introduction to Health Promotion and Disease Prevention 3 s.h.
- 173:140 Epidemiology I: Principles 3 s.h.
- 175:197 Environmental Health 3 s.h.

One of these:
- 174:102 Introduction to the U.S. Health Care System 3 s.h.
- 174:200 Introduction to Health Care Organization and Policy 3 s.h.

**M.P.H. PRACTICUM**

The practicum is a fieldwork experience in which students show proficiency in applying academic principles in community settings. Students must complete all core courses before registering for the practicum. A final written report and an oral presentation are required. The practicum, final report, and oral presentation constitute the final examination for the M.P.H.

The setting for the 200-hour Pharm.D./M.P.H. practicum must have both public health and pharmacy components.

**M.P.H. ELECTIVES**

Students select electives totaling 9 s.h. from one of the following public health areas: biostatistics, community and behavioral health, epidemiology, occupational and environmental health, public health genetics, health management and policy, aging studies, maternal child and family health, global health, clinical investigation, or nutrition and exercise. Electives are chosen in consultation with the student's advisors in the Colleges of Pharmacy and Public Health.

**COURSES THAT COUNT TOWARD BOTH DEGREES**

The following required courses from the Pharm.D. curriculum (9 s.h.) also count as credit toward the M.P.H.: 046:130 Core Principles in Pharmaceutical Socioeconomics, 046:154 Endocrinology, Ophthalmology, Women's and Men's Health Therapeutics, 046:156 Cardiovascular Therapeutics, and 046:165 Infectious Disease Therapeutics.

**PHARM.D. REQUIREMENTS**

The joint Pharm.D./M.P.H. program requires students to complete the professional curriculum of the Pharm.D. program (see "Doctor of Pharmacy" in the College of Pharmacy section of the Catalog). In addition to the professional curriculum, Pharm.D./M.P.H. students also must complete one semester of community service (046:001 Community Service: Introductory Practical Experience I) during the first professional year, and a three-week community externship (046:002 Basics of Community Pharmacy: Introductory Practical Experience II) some time after the end of the first professional year and before the beginning of the third professional year.

Students must be enrolled in the College of Pharmacy in order to take College of Pharmacy courses.

**Admission**

Detailed information about graduate study at The University of Iowa, including application requirements and procedures, is provided in the Manual of Rules and Regulations of the Graduate College; see the Graduate College section of the Catalog.

Applicants must have successfully completed one semester each of college algebra and biology.

All applicants must submit a Graduate College application form, three letters of reference, a statement of purpose that describes their interest in public health and identifies a specialty area, and a resume highlighting professional experience in public health or in nursing. All applicants must submit scores on the Graduate Record Exam (GRE) General Test, LSAT, DAT, VCAT, GMAT, or another professional placement exam. Scores must be at or above the median scores for test takers applying to similar programs.

International applicants who do not hold a baccalaureate degree from an accredited college or university in the United States, the United Kingdom, Canada (except Quebec), Australia, or New Zealand are required to take the Test of English as a Foreign language (TOEFL), earning a score of at least 600 on the paper-based exam or at least 250 on the computer-based exam. International applicants whose TOEFL scores range from 550 to 599 (paper-based) or 213 to 249 (computer-based) are required to take English fluency courses at their own expense. Applicants whose TOEFL scores fall below those ranges are not considered for admission.

**ADMISSION DEADLINES**

For fall entrance: May 1 (or until the class is filled) for U.S. citizens and permanent residents; April 1 for international applicants.

For spring entrance: November 1 for U.S. citizens and permanent residents; October 1 for international applicants.
Courses

170:099 Evidence-Based Public Health Methods 3 s.h.
How to choose, conduct, and evaluate evidence-based programs and policies in public health; finding and using scientific evidence, implementing and evaluating interventions that produce new evidence.

170:101 Introduction to Public Health 3 s.h.
Concepts, structures, and activities in public health practice. Offered fall semesters and summer sessions.

170:171 Problems in Public Health arr.
Discussion material in public health, including tutorial, seminar, faculty-directed independent work (e.g., literature search, project, short research project).

170:172 Independent Study in Public Health arr.
In-depth pursuit of an area of special interest in public health.

170:199 Africorps Public Health Experience 1-6 s.h.
Participation and critical observation of public health programs in urban and rural Africa; professional competence in international health, public health, or research in developing countries.

170:201 Research in Public Health arr.

170:203 Preceptorship in Public Health arr.
Individual work experience using knowledge and skill acquired in core classes (placement in Carver College of Medicine or off-campus in a governmental agency or private industry).

170:299 M.P.H. Practicum Experience 3-6 s.h.

170:300 Thesis arr.

170:998 Special Studies On Campus arr.
On-campus internship using community services in primary care practice; how public health and community health agencies operate in the context of the total health care service system. Prerequisite: medical student standing.

Master of Science

The M.S. program provides training in the design and analysis of experiments and sample surveys and in analysis of data related to biomedical or public health problems. Mathematical, statistical, and computer methods for dealing with quantitative information are emphasized, and there are opportunities for students to gain statistical consulting experience on a variety of problems.

Graduates find career opportunities in many areas, including pharmaceutical, health care, and research companies and institutions, consulting firms, universities, and government agencies.

The program requires a minimum of 38 s.h. of course work. Students must maintain a g.p.a. of at least 3.00. Those who receive a grade of C on 7 s.h. or more of course work may be dismissed from the program.

All master's degree students are required to complete an in-depth preceptorship under the direction of a departmental faculty member and a final comprehensive-style examination.

REQUIRED COURSES

All of these:
171:173 Intermediate Design of Sample Surveys 3 s.h.
171:201-171:202 Biostatistical Methods I-II 8 s.h.
171:241 Statistical Methods in Epidemiology 3 s.h.
171:266 Statistical Methods in Clinical Trials 3 s.h.
173:140 Epidemiology I: Principles 3 s.h.
One of these:
069:133 Introduction to Human Pathology 3 s.h.
096:114 Human Pathophysiology: Organ Systems 3 s.h.
096:115 Human Pathophysiology: Cellular/Neurology/Immunology 3 s.h.
127:191 Human Molecular Genetics 3 s.h.
170:101 Introduction to Public Health 3 s.h.
172:101 Introduction to Health Promotion and Disease Prevention 3 s.h.
174:102 Introduction to the U.S. Health Care System 3 s.h.
175:197 Environmental Health 3 s.h.

Electives

Two of these (at least 6 s.h.):
22S:138 Bayesian Statistics 3 s.h.
22S:161 Applied Multivariate Analysis 3 s.h.
22S:255 Linear Models 4 s.h.
171:164 Research Data Management 3 s.h.
171:242 Applied Survival and Cohort Data Analysis 3 s.h.
171:261 Survival Data Analysis 3 s.h.
171:262 Analysis of Categorical Data 3 s.h.
171:264 Longitudinal Data Analysis 3 s.h.
171:267 Intervention and Clinical Trials 3 s.h.
185:270 Genetics and Epidemiology 4 s.h.
185:272 Population and Quantitative Genetics 3 s.h.
185:274 Theory of Statistical Genetics 3 s.h.
185:276 Statistical Genetics Laboratory 3 s.h.
173:240 Epidemiology II: Advanced Methods 3 s.h.

Doctor of Philosophy

The Ph.D. program prepares students for professional and academic careers in biostatistics, especially for positions in which there is an emphasis on developing and applying statistical methodology to solve important biological and public health problems.

The doctoral degree requires a minimum of 79 s.h. of course work. Doctoral students must maintain a g.p.a. of at least 3.00. Those who receive a grade of C on 7 s.h. or more of course work may be dismissed from the program.

All doctoral students must successfully complete a qualifying examination, a comprehensive examination, and a dissertation—a substantial scholarly treatise. The research topic and content, which vary depending on the program of study, must be approved by the student’s dissertation committee. Other degree requirements include approved electives chosen from departmental and other University of Iowa courses.

Requirements for the Ph.D. are as follows.

REQUIRED COURSES

All of these courses also are required for the department’s master of science degree. Students who have not completed these courses, or their equivalents, before entering the Ph.D. program are required to complete them during Ph.D. study.

All of these:
171:173 Intermediate Design of Sample Surveys 3 s.h.
171:201-171:202 Biostatistical Methods I-II 8 s.h.
171:241 Statistical Methods in Epidemiology 3 s.h.
171:266 Statistical Methods in Clinical Trials 3 s.h.
173:140 Epidemiology I: Principles 3 s.h.
One of these:
069:133 Introduction to Human Pathology 3 s.h.
096:114 Human Pathophysiology: Organ Systems 3 s.h.
096:115 Human Pathophysiology: Cellular/Neurology/Immunology 3 s.h.
127:191 Human Molecular Genetics 3 s.h.
170:101 Introduction to Public Health 3 s.h.
172:101 Introduction to Health Promotion and Disease Prevention 3 s.h.
174:102 Introduction to the U.S. Health Care System 3 s.h.
175:197 Environmental Health 3 s.h.
List A
All of these:
22S:255 Linear Models 4 s.h.
171:251-171:252 Theory of Biostatistics I-II 8 s.h.
171:290 Advanced Biostatistics Seminar 1 s.h.

List B
Three of these:
22S:256 Multivariate Analysis 3 s.h.
171:261 Survival Data Analysis 3 s.h.
171:262 Analysis of Categorical Data 3 s.h.
171:264 Longitudinal Data Analysis 3 s.h.

List C
Two of these:
22S:138 Bayesian Statistics 3 s.h.
22S:161 Applied Multivariate Analysis 3 s.h.
22S:248 Computer Intensive Statistics 3 s.h.
185:274 Theory of Statistical Genetics 3 s.h.

List D
At least 3 s.h. from these:
22S:156 Applied Time Series Analysis 3 s.h.
22S:195 Probability and Stochastic Processes I 3 s.h.
171:243 Cohort Data Analysis 1 s.h.
171:280 Preceptorship in Biostatistics (in addition to preceptorship required for M.S.) 3 s.h.
171:290 Advanced Biostatistics Seminar 1 s.h.
185:270 Statistical Genetics Laboratory 3 s.h.
Any course not already taken from List B or C 3 s.h.

ELECTIVES
Students must complete at least 6 s.h. of electives chosen from the following list or from other graduate-level health science courses, in consultation with their advisers.

Biostatistics
171:267 Intervention and Clinical Trials 3 s.h.
185:270 Genetics and Epidemiology 4 s.h.

Community and Behavioral Health
172:150 Health Behavior and Health Education 3 s.h.

Environmental Health
175:197 Environmental Health 3 s.h.
175:209 Rural Health and Agricultural Medicine 3 s.h.
175:210 Occupational Health 3 s.h.
175:252 Theories of Environmental Policy and Assessment 3 s.h.
175:260 Environmental Toxicology 3 s.h.

Epidemiology
173:235 Nutritional Epidemiology 2 s.h.
173:240 Epidemiology II: Advanced Methods 3 s.h.
173:251 Injury Epidemiology 3 s.h.
173:255 Epidemiology of Infectious Disease 3 s.h.
173:256 Hospital Epidemiology 2 s.h.
173:260 Epidemiology of Chronic Diseases 3 s.h.
173:261 Epidemiology of Aging 1 s.h.
173:262 Neuroepidemiology 1 s.h.
173:263 Epidemiology of Reproductive Diseases 2 s.h.
173:265 Cardiovascular Disease Epidemiology 3 s.h.
173:267 Psychiatric Epidemiology 3 s.h.
173:270 Cancer Epidemiology and Control 3 s.h.
173:291 Pharmacoepidemiology 3 s.h.

DISSERTATION
171:300 Thesis/Dissertation (at least two semesters in residence) 10 s.h.

Admission
Detailed information about graduate study at The University of Iowa, including application requirements and procedures, is provided in the Manual of Rules and Regulations of the Graduate College; see the Graduate College section of the Catalog.

The biostatistics faculty considers several factors when evaluating applications for admission, including GRE scores, grade-point averages, letters of recommendation, intent and motivation for graduate study, and research interests. A student with deficiencies in one area may be admitted if all other components of his or her application are very strong.

All master’s and doctoral program applicants must hold a baccalaureate degree and have a cumulative g.p.a. of at least 3.00. Applicants must have taken the Graduate Record Examination (GRE) General Test. International applicants who do not hold a baccalaureate degree from an accredited college or university in the United States, the United Kingdom, Canada (except Quebec), Australia, or New Zealand are required to take the Test of English as a Foreign Language (TOEFL), earning a score of at least 600 on the paper-based exam or at least 250 on the computer-based exam. International applicants whose TOEFL scores range from 550 to 599 (computer-based) are required to take English fluency courses. Applicants whose TOEFL scores fall below those ranges are not considered for admission.

All master’s and doctoral program applicants must hold a baccalaureate degree and have a cumulative g.p.a. of at least 3.00. Applicants must have taken the Graduate Record Examination (GRE) General Test. International applicants who do not hold a baccalaureate degree from an accredited college or university in the United States, the United Kingdom, Canada (except Quebec), Australia, or New Zealand are required to take the Test of English as a Foreign Language (TOEFL), earning a score of at least 600 on the paper-based exam or at least 250 on the computer-based exam. International applicants whose TOEFL scores range from 550 to 599 (computer-based) are required to take English fluency courses. Applicants whose TOEFL scores fall below those ranges are not considered for admission.

All master's and doctoral program applicants must hold a baccalaureate degree and have a cumulative g.p.a. of at least 3.00. Applicants must have taken the Graduate Record Examination (GRE) General Test. International applicants who do not hold a baccalaureate degree from an accredited college or university in the United States, the United Kingdom, Canada (except Quebec), Australia, or New Zealand are required to take the Test of English as a Foreign Language (TOEFL), earning a score of at least 600 on the paper-based exam or at least 250 on the computer-based exam. International applicants whose TOEFL scores range from 550 to 599 (computer-based) are required to take English fluency courses. Applicants whose TOEFL scores fall below those ranges are not considered for admission.

All master's and doctoral program applicants must hold a baccalaureate degree and have a cumulative g.p.a. of at least 3.00. Applicants must have taken the Graduate Record Examination (GRE) General Test. International applicants who do not hold a baccalaureate degree from an accredited college or university in the United States, the United Kingdom, Canada (except Quebec), Australia, or New Zealand are required to take the Test of English as a Foreign Language (TOEFL), earning a score of at least 600 on the paper-based exam or at least 250 on the computer-based exam. International applicants whose TOEFL scores range from 550 to 599 (computer-based) are required to take English fluency courses. Applicants whose TOEFL scores fall below those ranges are not considered for admission.

Applications are considered on a rolling basis in the fall and spring semesters. Prospective students are encouraged to apply far in advance of the start of their desired term. The Biostatistics graduate program receives a high number of applications each year. Students are strongly encouraged to submit their applications as early as possible, especially those applying to receive financial support.

International applicants whose TOEFL scores range from 550 to 599 on the computer-based exam or at least 250 on the paper-based exam are required to take English fluency courses. International applicants who do not hold a baccalaureate degree from an accredited college or university in the United States, the United Kingdom, Canada (except Quebec), Australia, or New Zealand are required to take the Test of English as a Foreign Language (TOEFL), earning a score of at least 600 on the paper-based exam or at least 250 on the computer-based exam. International applicants whose TOEFL scores range from 550 to 599 (computer-based) are required to take English fluency courses. Applicants whose TOEFL scores fall below those ranges are not considered for admission.

The University’s Office of Student Financial Aid offers information on financing education through jobs, grants, and loans.

Resources
Examples of ongoing departmental resources and activities include the Biostatistical Consulting Center, the Clinical Trials Statistical and Data Management Center, and the Center for Public Health Statistics. The Biostatistical Consulting Center provides opportunities for students to gain valuable experience working with faculty and staff in the health sciences at The University of Iowa. The Clinical Trials Statistical and Data Management Center serves the statistical design, data management, and analysis needs of a variety of multicenter clinical trials, including studies of new treatments for acute ischemic stroke and use of hypothermia in aneurysm surgery. The Center for Public Health Statistics facilitates the collection, statistical analyses, and dissemination of health data in support of the University’s research, teaching, and service missions and in partnership with the Iowa Department of Public Health.

Courses
171:161 Introduction to Biostatistics 3 s.h.
Application of statistical techniques to biological data, including descriptive statistics; probability, normal, binomial, and Poisson distributions; sampling distributions; tests of significance; confidence intervals; analysis of frequency data; simple linear regression. Prerequisite: college algebra.

171:162 Design and Analysis of Biomedical Studies 3 s.h.
Simple and multiple linear regression and correlation; one- and two-way layout considerations in planning experiments, factorial experiments; Tukey’s, Scheffe’s, Dunnett’s multiple comparison techniques and orthogonal contrasts. Offered spring semesters. Prerequisite: 171:161 or equivalent. Same as 226:140.

171:163 Introduction to the Design of Sample Surveys 3 s.h.
Techniques of constructing and analyzing sample surveys, including general methods of estimation, properties of estimators, simple random sampling, stratified sampling, ratio and regression estimators, systematic sampling, cluster sampling. Offered fall semesters of even years. Prerequisite: 171:161 or equivalent.

171:164 Research Data Management 3 s.h.
Overview of problems encountered in gathering and processing data from biomedical investigations; introduction to data
managing techniques useful in biomedical studies; introduces to Microsoft Access. Offered fall semesters of odd years. Prerequisite: Fortran or C programming capability.

171:168 Introduction to Biostatistical Computing 1 s.h.
Introduction to R, as well as using R for writing functions, database management, handling raw data, and extending R with C or Fortran, dynamic graphics and symbolic manipulation. Pre-or corequisite: 171:201.

171:171 Statistical Methods in Oncology 1 s.h.
Statistical methods used in oncology, hematology, and cancer.

171:173 Intermediate Design of Sample Surveys 3 s.h.
Challenges in designing sample surveys; emphasis on construction and evaluation of a survey design, unbiased rate estimation, misclassification, sampling, estimation of variance in complex surveys, double sampling, sampling frame construction problems, panel studies, and problems due to nonresponse. Offered spring semesters of even years.

171:174 Introductory Longitudinal Data Analysis 3 s.h.
Statistical models and estimation methods used to analyze correlated data (e.g., the same subject measured repeatedly); focus on use of statistical software. Offered fall semesters. Pre-or corequisite: 171:161 or 171:162 or 225:152. Same as 225:160.

171:201 Biostatistical Methods I 4 s.h.
Provides an introduction to probability distributions, moments, estimation, parametric and nonparametric inference for one-sample and two-sample problems, analysis of frequency data, linear regression, and correlation analysis, with emphasis on use of computers. Offered fall semesters. Prerequisites: two semesters of calculus and consent of instructor.

171:202 Biostatistical Methods II 4 s.h.
Continuation of 171:201, which is prerequisite; linear regression and correlation, multiple linear regression, unbalanced experiments, multiple comparisons, orthogonal contrasts, block and split-plot designs, confounding interactions, and mixed models. Offered spring semesters. Prerequisite: 171:201.

171:241 Statistical Methods in Epidemiology 3 s.h.
Overview of methods to analyze data from epidemiologic investigations; estimation of rates and risks, measures of relative risk, stratified analysis, logistic regression analysis. Offered fall semesters. Prerequisites: 171:161 and 171:140. Recommended: 171:162.

171:242 Applied Survival and Cohort Data Analysis 3 s.h.
Nonparametric and semiparametric methods for survival data; methods of directly comparing standardized rates and standardization mortality ratios; Poisson regression for cohort data. Offered spring semesters of odd years. Prerequisites: 171:162 and 171:241.

171:243 Cohort Data Analysis 1 s.h.
Methods of comparing direct standardized rates and standardized mortality ratios; Poisson regression for cohort data. Offered spring semesters of odd years. Prerequisites: 171:162 or 171:241, and consent of instructor.

171:251 Theory of Biostatistics I 4 s.h.
Intermediate study of sufficiency, exponential families, methods of estimation, unbiasedness, efficiency, and sample size determination. Offered fall semesters. Prerequisites: 171:161 or 171:241, and consent of instructor.

171:252 Theory of Biostatistics II 4 s.h.

171:261 Survival Data Analysis 3 s.h.
Types of competing risks and survival function estimation, like tables, parametric inference using exponential, Weibull, and accelerated failure time models; nonparametric tests; sample size calculation, Cox regression with stratification and time-dependent covariates; regression diagnostics; competing risks; analysis of censored survival data. Offered fall semesters of odd years. Prerequisites: 225:153, 225:154, and 171:202 or equivalent. Same as 225:225.

171:262 Analysis of Categorical Data 3 s.h.
Models for discrete data, distribution theory, maximum likelihood and weighted least squares estimation for categorical data, tests of fit, model selection. Offered spring semesters. Prerequisites: 225:164 and 225:104, or consent of instructor. Same as 225:220.

171:264 Longitudinal Data Analysis 3 s.h.
Introduction to statistical methodology for analyzing data from observational and experimental studies in which the response variable from each subject is measured repeatedly; emphasis on use of statistical software packages and specialized programs. Offered spring semesters of odd years. Prerequisites: 225:154 and 171:202.

171:266 Statistical Methods in Clinical Trials 3 s.h.
Survey of statistical methods commonly used in clinical trials; methodological perspective on design, conduct, and analysis of trials; emphasis on Phase III randomized controlled clinical trials. Offered spring semesters. Prerequisite: 171:201 or equivalent or consent of instructor. Corequisite: 171:162 or 171:202 or consent of instructor.

171:267 Intervention and Clinical Trials 3 s.h.
Methodologic introduction to rationale, design, conduct, analysis, and presentation of clinical trials; clinical trial designs; biostatistical methods including sample size determination. Offered fall semesters. Prerequisites: 171:161 or equivalent, and 173:140 or equivalent, or consent of instructor. Same as 173:230.

171:280 Preceptorship in Biostatistics arr.
Work experience using knowledge and skill acquired in classroom; arranged in conjunction with ongoing departmental or collegiate activities or with governmental agencies or private industry; preparation of prospectus and presentation of research results in a departmental seminar. Repeatable.

171:281 Independent Study in Biostatistics arr.
In-depth pursuit of an area of special interest in biostatistics requiring substantial creativity and independence. Repeatable.

171:282 Problems/ Special Topics in Biostatistics arr.
Didactic material in biostatistics; may include tutorials, seminars, faculty-directed independent work (e.g. literature search, project, short research project). Repeatable.

171:290 Advanced Biostatistics Seminar 1 s.h.
Current topics; supervised experience in reading and interpreting biostatistical literature. Offered spring semesters. Prerequisite: consent of instructor.

171:295 Research in Biostatistics arr.
Research that may lead to a dissertation. Repeatable.

Repeatable.

COMMUNITY AND BEHAVIORAL HEALTH
Head: John R. Lowe
Professors: Elizabeth Atmnaier (Psychological and Quantitative Foundations), Melanie Dreher (Nursing), Jennifer Glass (Sociology), Paul Greenough (History), Randy Hirokawa (Communication Studies), John B. Lowe, Keith Marshall (Anthropology), Peter Nathan (Psychology), Michael Teague (Leisure Studies)
Visiting professor: Frank Boster
Associate professors: Upton Barrette, Karen Farris (Pharmacy), Kristi Ferguson, James Hall (Social Work), Jeffrey Lobas (Pediatrics), Ann Marie McCarthy (Nursing), Salome Raheim (Social Work), Nancy Thompson
Adjunct associate professor: Kevin Kelly
Assistant professors: Mary Aquilino, Shelly Campo

BEHAVIORAL AND SOCIAL SCIENCES CORE
Three of these (9 s.h.):
113:185 Medical Anthropology
172:106 Designing and Implementing Interventions
172:110 Community Development in Public Health
172:130 Social Determinants of Health
172:150 Health Behavior and Health Education
172:240 Health Communication
172:242 Persuasion and Health
172:246 Health Communication

RESEARCH METHODS CORE
Two of these (6 s.h.):
07P:249 Factor Analysis and Structural Equation Models
07P:252 Introduction to Multivariate Statistical Methods
171:162 Design and Analysis of Biomedical Studies
172:181 Evaluation I: Theory and Applications
172:183 Qualitative Research for Public Health
172:282 Evaluation II: Design and Methods

CONTENT AREA ELECTIVES
Students work with their adviser to select at least 5 s.h. of coursework appropriate to their educational goals and emphasis area. Selections may be made from any community and behavioral health courses not already taken.

Master of Science

The M.S. program prepares individuals for research and professional positions in community and behavioral health or for Ph.D. study in community and behavioral health. A modular curriculum encourages students to design programs of study according to their interests and professional goals.

This degree requires 35 s.h., including a thesis. During their first semester, students work with their academic adviser to develop a plan of study that will satisfy their individual goals as well as the following requirements. In addition to the courses below, students are required to attend departmental seminars.

BEHAVIORAL AND SOCIAL SCIENCES CORE
Three of these (9 s.h.):
113:185 Medical Anthropology
172:106 Designing and Implementing Interventions
172:110 Community Development in Public Health
172:130 Social Determinants of Health
172:150 Health Behavior and Health Education
172:240 Health Communication
172:242 Persuasion and Health
172:246 Health Communication

RESEARCH METHODS CORE
Two of these (6 s.h.):
07P:249 Factor Analysis and Structural Equation Models
07P:252 Introduction to Multivariate Statistical Methods
171:162 Design and Analysis of Biomedical Studies
172:181 Evaluation I: Theory and Applications
172:183 Qualitative Research for Public Health
172:282 Evaluation II: Design and Methods

CONTENT AREA ELECTIVES
Students work with their adviser to select at least 5 s.h. of coursework appropriate to their educational goals and emphasis area. Selections may be made from any community and behavioral health courses not already taken.
other College of Public Health courses, or other University of Iowa graduate-level courses.

**THESIS**
The thesis requirement is 6 s.h.

Thesis/dissertation hours arr.

**M.P.H. Subtrack in Community and Behavioral Health**
The community and behavioral health subtrack in the Master of Public Health prepares public health practitioners for a variety of positions in community development, health program implementation, and health education. See “Master of Public Health (M.P.H.)” in the Catalog.

**Doctor of Philosophy**
The Ph.D. program prepares individuals for academic, research, and policy-making work in the social and behavioral health sciences. This fast-growing academic specialty offers many career opportunities in academic and research institutions.

The Ph.D. requires at least 75 s.h. of course work beyond the baccalaureate degree, including transfer credit given for a masters degree. Students must successfully complete a comprehensive exam and a dissertation—a substantial scholarly treatise. The research topic must be approved by the student’s dissertation committee.

During their first semester, students work with their academic adviser to develop a plan of study that will satisfy their individual goals as well as the following requirements. In addition to the courses below, students are required to attend departmental seminars.

**COLLEGE OF PUBLIC HEALTH CORE**
All of these (9 s.h.):
- 171:160 Introduction to Biostatistics 3 s.h.
- 172:101 Introduction to Health Promotion and Disease Prevention 3 s.h.
- 173:140 Epidemiology I: Principles 3 s.h.

**BEHAVIORAL AND SOCIAL SCIENCES CORE**
Seven of these (21 s.h.):
- 113:185 Medical Anthropology 3 s.h.
- 172:106 Designing and Implementing Interventions 3 s.h.
- 172:110 Community Development in Public Health 3 s.h.
- 172:130 Social Determinants of Health 3 s.h.
- 172:150 Health Behavior and Health Education 3 s.h.
- 172:240 Health Communication 3 s.h.
- 172:242 Persuasion and Health 3 s.h.
- 172:240 Health Communication Campaigns 3 s.h.

**RESEARCH METHODS CORE**
Five of these (15 s.h.):
- 07P:249 Factor Analysis and Structural Equation Models 3 s.h.
- 07P:252 Introduction to Multivariate Statistical Methods 3 s.h.
- 171:162 Design and Analysis of Biomedical Studies 3 s.h.
- 172:181 Evaluation I: Theory and Applications 3 s.h.
- 172:183 Qualitative Research for Public Health 3 s.h.
- 172:282 Evaluation II: Design and Methods 3 s.h.

**CONTENT AREA ELECITIVES**
Students work with their adviser to select at least 18 s.h. of course work appropriate to their educational goals and emphasis area. Selections may be made from any community and behavioral health courses not already taken, other College of Public Health courses, or other University of Iowa graduate-level courses.

**DISSERTATION**
The dissertation requirement is 12 s.h.

Thesis/dissertation hours arr.

**Ph.D. Subtrack in Addiction Studies**
The addiction studies subtrack in addiction studies combines core course work from the Ph.D. curriculum with additional specialized training in strategies to develop and evaluate addiction prevention and intervention programs. This area of study and practice examines addiction prevention and treatment from both a public health and a biopsychosocial perspective. The program is designed to prepare graduates to chart the course of research on addiction prevention and treatment.

Addiction studies subtrack students fulfill the regular Ph.D. requirements, using the addiction studies core to satisfy the content area electives requirement.

**ADDITION STUDIES CORE**
Students work with their adviser to select 18 s.h. of addiction studies course work offered by the department. Courses currently under development include Research on Treatment of Substance Abuse and Comorbid Psychopathology, Research on Prevention of Substance Abuse and Comorbid Psychopathology, and Assessment and Diagnosis of Addiction and Comorbid Psychopathology.

**Admission**
Detailed information about graduate study at The University of Iowa, including application requirements and procedures, is provided in the Manual of Rules and Regulations of the Graduate College; see the Graduate College section of the Catalog.

The community and behavioral health faculty considers several factors when evaluating applications for admission, including scores on the Graduate Record Exam, grade-point averages, letters of recommendation, intent and motivation for graduate study, and research interests. A student with deficiencies in one area may be admitted if all other components of his or her application are very strong.

All applicants must submit academic transcripts, three letters of recommendation, and a statement of purpose form (available from the department). Applicants to the M.S. program must have a cumulative grade-point average of at least 3.00 and should hold a bachelor’s degree from an accredited college or university. No specific undergraduate major is required. Preference is given to applicants with Graduate Record Exam verbal scores of at least 550, quantitative scores of at least 580, and analytical writing scores of at least 4.0.

Applicants to the Ph.D. program must have a graduate grade-point average of at least 3.40 and should hold a graduate degree from an accredited college or university—ideally, an M.S. in community and behavioral health, or another public health degree, or a related social science degree, or a clinical health degree. Applicants who do not hold a graduate degree should apply to the M.S. program. Preference is given to applicants with Graduate Record Exam combined verbal and quantitative scores of at least 1200 and an analytical writing score of at least 4.0. Ph.D. program applicants also must submit their masters thesis, or if no thesis is available, a sample of their scholarly writing.

International applicants who do not hold a baccalaureate degree from an accredited college or university in the United States, the United Kingdom, Canada (except Quebec), Australia, or New Zealand are required to take the Test of English as a Foreign Language (TOEFL), earning a score of at least 600 on the paper-based exam or at least 250 on the computer-based exam.

**APPLICATION DEADLINES**
- For fall entry: June 1 for U.S. citizens, April 1 for international applicants
- For spring entry: November 1 for U.S. citizens, October 1 for international applicants

Applications received by January 20 receive maximum consideration for financial aid.

**Financial Support**
Several forms of financial support are available, including scholarships and awards, student loans, and graduate assistantships.

Graduate assistantships provide a stipend and entitle students to resident tuition and reduced health insurance costs. Research assistantships are competitive and are awarded according to department need and student merit. Most graduate students do not receive assistantships until their second year in the program.

Scholarships and fellowships are available through federal agencies, such as the Centers for Disease Control and the National Institutes of Health, and from private foundations.

**Resources**
The department houses the Iowa Tobacco Research Center, Prairielands Addiction Technology Transfer Center, the Center for Public Health Prevention, and the Iowa Prevention Research Center. M.S. and Ph.D. students may be asked to assist with ongoing research projects.
The Iowa Tobacco Research Center supports innovative research and education on tobacco use and prevention, as well as provision and support of culturally competent and accessible smoking cessation services. The Prairielands Addiction Technology Transfer Center provides state-of-the-art trainings, curricula, and resources on substance use issues for counselors, health care professionals, and members of the community. The Center for Public Health Program Evaluation focuses on conducting evaluations of training, educational materials and procedures, program development, and community-based interventions. The Iowa Prevention Research Center focuses on improving the health of rural Iowans.

### Courses

**172:101 Introduction to Health Promotion and Disease Prevention**

- **3 s.h.**
  - Basic concepts, strategies, and methods of health promotion and disease prevention; health promotion in the context of public health theories and principles that underpin health promotion; overview of policy formation and health promotion planning, implementation, evaluation. Offered spring semesters.
  - Prerequisite: graduate standing or consent of instructor.

**172:106 Designing and Implementing Interventions**

- **3 s.h.**
  - Background and necessary skills to plan a public health intervention program; program planning models. Offered fall semesters.
  - Prerequisites: 172:150, and admission to College of Public Health or consent of instructor.

**172:110 Community Development in Public Health**

- **3 s.h.**
  - Concepts, strategies, and methods of community development as major approaches for creating healthy communities and promoting social change; role of public health practitioners as agents of change in organizations, communities. Offered fall semesters.
  - Prerequisite: graduate standing or consent of instructor.

**172:115 Community Preventive Programs and Services**

- **2 s.h.**
  - Overview of recommended community preventive programs and services, information useful in their development and implementation. Offered fall semesters.

**172:122 Maternal, Child, and Family Health**

- **3 s.h.**
  - Major issues, policies, and programs for health of women, children, and families in the United States; social, political, and economic determinants. Offered spring semesters.
  - Prerequisites: 090:030 and 173:140, or consent of instructor.

**172:125 American Indian Health**

- **3 s.h.**
  - Native American Indian health issues; anthropological and historical perspectives, cultural aspects of traditional Indian medicine, governmental policies and the Indian Health Service. Same as 149:135.

**172:130 Social Determinants of Health**

- **3 s.h.**
  - Social and behavioral science concepts and methods relevant to effective intervention, implementation, improvement of health programs. Offered spring semesters.
  - Prerequisite: graduate standing or consent of instructor.

**172:131 Anthropology and International Health**

- **3 s.h.**
  - Medical anthropology and Critical role in international health; research and practice; political ecology of infectious disease, quest for cultural appropriateness interventions. Offered spring semesters. Same as 113:184, 152:184.

**172:133 The Anthropology of Women's Health**

- **3 s.h.**
  - How female gender intersects with culture, environment, and political economy to shape health and illness; reproductive health, violence, drug use, cancer; readings in anthropology and public health. Offered fall semesters. Prerequisite: 113:003 or 113:010 or 131:010 or graduate standing or consent of instructor. Same as 113:133, 131:133.

**172:144 Physician-Patient Communication**

- **3 s.h.**
  - Research on characteristics and qualities of physician-patient talk and patient outcomes. Prerequisite: 036:060 or graduate standing or consent of instructor. Same as 036:161.

**172:150 Health Behavior and Health Education**

- **3 s.h.**
  - Usual theories of health behavior and health education, their application to a variety of settings. Offered spring semesters.
  - Prerequisite: graduate standing or consent of instructor.

**172:161 Substance Abuse and Mental Health**

- **3 s.h.**
  - Prevalence and defining characteristics of substance-related and mental health disorders; gender, cultural, ethnic, life-span, and socioeconomic differences, at individual and community levels; implications for primary and secondary prevention. Offered spring semesters.
  - Prerequisite: graduate standing and a course in substance abuse or consent of instructor.

**172:170 Special Topics**

- **are**
  - Didactic material in community and behavioral health that may include tutorial, seminar, or faculty-directed independent work (e.g., literature search, project, PhD research project).
  - Prerequisite: consent of instructor.

**172:181 Evaluation I: Theory and Applications**

- **3 s.h.**
  - Program evaluation methods in public health; overview of evaluation theory and models of program evaluation, examples of public health program evaluation, criteria for judging evaluation methods and products. Offered fall semesters.
  - Prerequisite: Public Health student standing or consent of instructor.

**172:183 Qualitative Research for Public Health**

- **3 s.h.**
  - Methods and theories of qualitative research that enable researchers to describe and explain social phenomena related to health behavior, illness, prevention, and treatment in the public health domain. Offered fall semesters.
  - Prerequisite: graduate standing or consent of instructor.

**172:185 Communicating with the Community**

- **3 s.h.**
  - Communication skills for research and practice settings, taught from a cultural perspective with reference to: gender, age, ethnicity; individual and constructive interviewing, public speaking, conducting focus groups. Offered fall semesters.
  - Prerequisite: graduate standing or consent of instructor.

**172:200 Health Communication**

- **3 s.h.**
  - Theories, concepts, and models associated with health communication, interpersonal and mass communication approaches. Offered fall semesters.
  - Prerequisite: graduate standing or consent of instructor.

**172:242 Persuasion and Health**

- **3 s.h.**
  - Theories of persuasion and social influence; attitude formation, the relationship between attitudes and behaviors, persuasion theories and their applications across health topics. Prerequisite: graduate standing or consent of instructor.

**172:246 Health Communication Campaigns**

- **3 s.h.**
  - Design and analysis of health campaigns; theory, practice, methods; mass media, community, organization, and interpersonal approaches. Same as 036:375.

**172:270 Independent Study in Community and Behavioral Health**

- **are**
  - Pursuit of an interest in community and behavioral health requiring substantial creativity and independence. Repeatable.

**172:271 Research in Community and Behavioral Health**

- **are**
  - Advanced research in community and behavioral health. Repeatable.

**172:282 Evaluation II: Design and Methods**

- **3 s.h.**
  - Design and methodology for use in public health program evaluation; evaluation planning and selection of evaluation design, data collection and analysis, evaluation results reporting. Offered spring semesters.
  - Prerequisites: 172:181 and a course in biostatistics or statistics.

**172:300 CBH Thesis/Dissertation**

- **are**

### Epidemiology

**Head:** James C. Torner  
**Professors:** Theresa Burns (Biostatistics), Elizabeth Chirchilles (Pharmacy), Michael Cohen (Pathology/Urology), Gary Doern (Pathology), Claiborne Dungy (Pediatrics), Laurence Fuortes (Occupational and Environmental Health), Greg Gray, William Hammonds (Anesthesiology), Susan Johnson (Obstetrics and Gynecology), Louis Kirchhoff (Internal Medicine), Ronald Lauer (Pediatrics), Steve Levy (Preventive and Community Dentistry), Charles Lynch (Pathology), Larry Mahoney (Pediatrics), Jeffrey Murray (Pediatrics/Biological Sciences/Pediatric Dentistry), Ingrid Nygaard (Obstetrics and Gynecology), Michael Pfeifer (Pharmacology), Elaine Smith (Preventive and Community Dentistry), James Torner (Surgery), Robert Wallace (Internal Medicine), Mary Wilson (Internal Medicine), Craig Zwerling (Occupational and Environmental Health)  
**Professors emeriti:** Helmut Schrott (Internal Medicine), Robert Woolson (Biostatistics)  
**Adjunct professors:** Bradley Doebbling, Susan Joslyn, Heidi Klauser, M. Patricia Dwyer

**Associate professors:** R. William Field (Occupational and Environmental Health), Loreen Herwaldt (Internal Medicine), Kathleen Jans (Health and Sport Studies), David Katz (Internal Medicine), Neal Kohatsu, Cortney Peak-Assa (Occupational and Environmental Health), Jennifer Robinson, Audrey Saffs, Wayne Sanderson (Occupational and Environmental Health), Linda Sorensen (Internal Medicine), Don Van Dyke (Pediatrics)  
**Adjunct associate professors:** James Cerhan, Caroline Carney Doebbling, Jose Sanchez  
**Assistant professors:** Catherine Bradley (Obstetrics and Gynecology), John Brooks (Pharmacy), Leslie Dennis, Badrineth Konety (Urology), Paul Romitti  
**Adjunct assistant professors:** Russell Currier, Lucy DeLadnier, Maureen McCue, Michael Pentella, Sheila Riggs, Mario Schootman, Anne Tabor  
**Graduate degrees:** M.S., Ph.D. in Epidemiology  
**Web site:** http://www.public-health.uiowa.edu/epi

The Department of Epidemiology focuses on surveillance for disease, risk factors for disease in the general population, behavioral factors in disease, use and outcome of health interventions and care, and the establishment and evaluation of disease control measures in the community. Students are guided by faculty members whose research interests include epidemiology of communication disorders, pharmacoepidemiology, cancer epidemiology, infectious disease epidemiology, adverse reproductive outcome epidemiology, anatomic pathology, cardiovascular disease, nutrition, smoking cessation, epidemiology of reproduction, dental epidemiology, clinical epidemiology, neuroepidemiology, meta-analysis, intervention trials, international health, and effects of aging.

The department offers two graduate degrees: Master of Science and Doctor of Philosophy. In addition, an epidemiology subtrack is available in the M.P.H. degree; see “Master of Public Health (M.P.H.).”

### Master of Science

The M.S. program prepares graduate students for professional careers in which specialized knowledge of epidemiological methods and analytic techniques are essential. Graduates find employment in local, state, and federal health agencies, academic institutions, and private enterprise.

The degree is offered with or without thesis. It requires 38 s.h. Students must maintain a g.p.a. of at least 3.00. Those who receive a grade of C or lower in a major course may be dismissed from the program. Students who choose to complete the degree without thesis are required to pass a comprehensive examination.

In addition to the following course work, students are required to attend department seminars and journal club. They also must present one scientific poster at an international, national, regional, state, university, or department poster session.
REQUIRED COURSES
All of these:
171:161 Introduction to Biostatistics 3 s.h.
171:162 Design and Analysis of Biomedical Studies 3 s.h.
171:241 Statistical Methods in Epidemiology 3 s.h.
173:140 Epidemiology I: Principles 3 s.h.
173:160 Introduction to Epidemiologic Data Analysis with Computers 2 s.h.
173:240 Epidemiology II: Advanced Methods 3 s.h.
173:241 Epidemiology II: Advanced Methods Lab 2 s.h.

One of these:
069:133 Introduction to Human Pathology 3 s.h.
069:270 Pathogenesis of Major Human Diseases 3 s.h.

One of these:
173:255 Epidemiology of Infectious Diseases 3 s.h.
173:260 Epidemiology of Chronic Diseases 3 s.h.

One of these:
172:150 Health Behavior and Health Education 3 s.h.
173:280 Introduction to Health Care Organization and Policy 3 s.h.
175:197 Environmental Health 3 s.h.

One of these:
173:195 Preceptorship in Epidemiology (for those selecting non-thesis option) 3 s.h.
173:300 Thesis/Dissertation (for those selecting thesis option, may be taken twice) 3 s.h.

EPIDEMIOLOGY ELECTIVES
Two of these (total of 5 s.h.):
173:111 International Health 3 s.h.
173:155 Diagnostic Microbiology for Epidemiology 3 s.h.
173:225 Genetics and Epidemiology 4 s.h.
173:235 Nutritional Epidemiology 2 s.h.
173:245 Epidemiology of Physical Activity 3 s.h.
173:251 Injury Epidemiology 3 s.h.
173:255 Epidemiology of Infectious Diseases 3 s.h.
173:256 Hospital Epidemiology 2 s.h.
173:260 Epidemiology of Chronic Diseases 3 s.h.
173:261 Epidemiology of Aging 3 s.h.
173:262 Neuroepidemiology 1 s.h.
173:263 Epidemiology of Reproductive Diseases 2 s.h.
173:265 Cardiovascular Disease Epidemiology 3 s.h.
173:267 Psychiatric Epidemiology 3 s.h.
173:270 Cancer Epidemiology and Control 3 s.h.
173:285 Outcomes Research 2-3 s.h.
173:290 Intervention and Clinical Trials 3 s.h.
173:291 Pharmacoepidemiology 3 s.h.

OTHER ELECTIVES
Students work with their adviser to select at least 2 s.h. of course work appropriate to their educational goals and emphasis area. Selections may be made from any course not already taken from the list of epidemiology electives, other College of Public Health courses, or other graduate-level courses in the *General Catalog*.

**Doctor of Philosophy**

The Ph.D. program prepares graduate students for careers as scientists, teachers, and practitioners of epidemiologic methods. Opportunities exist in academic institutions; local, state and federal health agencies; and in commercial enterprises.

Students who wish to focus their studies in the areas of pharmacoepidemiology and outcomes research or in occupational injury epidemiology should consult the department.

The degree requires a minimum of 75 s.h. of course work. Doctoral students must maintain a g.p.a. of at least 3.00. Those who receive a grade of C on 7 s.h. or more of course work may be dismissed from the program.

All doctoral students must successfully complete a qualifying examination, a comprehensive examination, and a dissertation—a substantial scholarly treatise. The research topic and content, which vary depending on the program of study, must be approved by the student’s dissertation committee. Other degree requirements include approved electives chosen from departmental and other University of Iowa courses.

In addition to the following course work, students are required to attend departmental seminars and journal club. They also must present one scientific poster at an international, national, regional, state, university, or department poster session.

**REQUIRED COURSES**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>S.H.</th>
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<tbody>
<tr>
<td>072:151</td>
<td>Intermediate Physiology</td>
<td>4</td>
</tr>
<tr>
<td>171:161</td>
<td>Introduction to Biostatistics</td>
<td>3</td>
</tr>
<tr>
<td>171:162</td>
<td>Design and Analysis of Biomedical Studies</td>
<td>3</td>
</tr>
<tr>
<td>171:163</td>
<td>Introduction to the Design of Sample Surveys</td>
<td>3</td>
</tr>
<tr>
<td>171:164</td>
<td>Research Data Management</td>
<td>3</td>
</tr>
<tr>
<td>171:241</td>
<td>Statistical Methods in Epidemiology</td>
<td>3</td>
</tr>
<tr>
<td>171:242</td>
<td>Applied Survival and Cohort Data Analysis</td>
<td>3</td>
</tr>
<tr>
<td>173:140</td>
<td>Epidemiology I: Principles</td>
<td>3</td>
</tr>
<tr>
<td>173:160</td>
<td>Introduction to Epidemiologic Data Analysis with Computers</td>
<td>3</td>
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<tr>
<td>173:205</td>
<td>Research in Epidemiology</td>
<td>3</td>
</tr>
<tr>
<td>173:210</td>
<td>Writing a Research Protocol</td>
<td>3</td>
</tr>
<tr>
<td>173:225</td>
<td>Genetics and Epidemiology</td>
<td>4</td>
</tr>
<tr>
<td>173:240</td>
<td>Epidemiology II: Advanced Methods</td>
<td>3</td>
</tr>
<tr>
<td>173:241</td>
<td>Epidemiology II: Advanced Methods Lab</td>
<td>2</td>
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<tr>
<td>173:255</td>
<td>Epidemiology of Infectious Diseases</td>
<td>3</td>
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<tr>
<td>173:260</td>
<td>Epidemiology of Chronic Diseases</td>
<td>3</td>
</tr>
<tr>
<td>173:340</td>
<td>Epidemiology III: Theories</td>
<td>3</td>
</tr>
</tbody>
</table>

One of these:
069:133 Introduction to Human Pathology 3 s.h.
069:270 Pathogenesis of Major Human Diseases 3 s.h.

Two of these:
172:150 Health Behavior and Health Education 3 s.h.
174:200 Introduction to Health Care Organization and Policy 3 s.h.
175:197 Environmental Health 3 s.h.

**ELECTIVES**

In choosing at least 5 s.h. of elective courses, students may take departmental courses or courses that are related to students’ areas of study and are offered by other departments, subject to approval by their faculty adviser or dissertation adviser, and the course director.

**DISSERTATION**

All doctoral students must successfully complete a Ph.D. thesis.

173:300 Thesis 10-18 s.h.

**Admission**

Detailed information about graduate study at The University of Iowa, including application requirements and procedures, is provided in the Manual of Rules and Regulations of the Graduate College; see the Graduate College section of the Catalog.

The epidemiology faculty considers several factors when evaluating applications for admission, including GRE scores, grade-point average, letters of recommendation, intent and motivation for graduate study, and research interests. A student with deficiencies in one area may be admitted if all other components of his or her application are very strong.

All M.S. program applicants must hold a baccalaureate degree and have a cumulative g.p.a. of at least 3.00. Undergraduate preparation must have included two semesters of biological sciences and mathematics course work through algebra.

Ph.D. program applicants must hold a baccalaureate degree; an M.S. or M.P.H. degree usually is required. Applicants must have a cumulative g.p.a. of at least 3.00. Courses in the biological, physical and mathematical sciences provide important background course work; one semester of calculus and two semesters of biological sciences are highly recommended. Computing skills also are desirable.

All applicants must have taken the Graduate Record Examination (GRE) General Test.

International applicants who do not hold a baccalaureate degree from an accredited college or university in the United States, the United Kingdom, Canada (except Quebec), Australia, or New Zealand are required to take the Test of English as a Foreign language (TOEFL), earning a score of at least 600 on the paper-based exam or at least 250 on the computer-based exam. International applicants whose TOEFL scores range from 550 to 599 (paper-based) or 213 to 249 (computer-based) are required to take English fluency courses. Applicants whose TOEFL scores fall below those ranges are not considered for admission.

All applicants and continuing students are required to have strong written and oral communication skills.
Financial Support

A limited number of graduate research assistantships are available for advanced M.S. and Ph.D. students; for information, consult the department's Office of Graduate Financial Aid. The University's Office of Student Financial Aid offers information on financing education through jobs, grants, and loans.

Opportunities for funded postdoctoral fellowships are available. Funded positions sponsored by federal agencies are available only to U.S. citizens.

Resources

Examples of departmental resources and activities include the State Health Registries of Iowa, the Preventive Intervention Center, the Lipid Research Clinic, the Health Effectiveness Research Center, and the Center for Emerging Infectious Diseases.

The State Health Registries of Iowa, which encompasses the Iowa Cancer Registry and the Iowa Birth Defects Registry, works in cooperation with the Iowa Department of Public Health to collect medical data on Iowans and is one of 10 registries nationwide reporting data to the National Cancer Institute.

The Preventive Intervention Center conducts population-based intervention trials to prevent occurrence and recurrence of disease and promote wellness, with the focus on elderly men and women. The Lipid Research Clinic specializes in research promoting prevention of cardiovascular disease and provides an interdisciplinary approach to risk factor interventions. The Health Effectiveness Research Center is a collaborative research enterprise with the College of Pharmacy that studies whether particular health care treatments or services are overused. The Center for Emerging Infectious Diseases employs epidemiological methods, laboratory technologies, and clinical evaluations to achieve a better understanding of emerging infectious diseases.

Courses

173:111 International Health 3 s.h.
Urges health problems in the developing world and among disadvantaged populations in developed countries; biological, social, cultural, political aspects of international health problems; applications of research methods from epidemiology, environmental health, social sciences. Offered fall semesters. Same as 152:111, 175:111.

173:140 Epidemiology I: Principles 3 s.h.
Epidemiological concepts and methods; design of descriptive and analytic studies, such as aggregate, case series, cross-sectional, case-control, cohort studies; application of epidemiology to public health practice; communication and dissemination of epidemiological findings.

173:145 Public Health Data 2 s.h.
Concepts and methods of obtaining and using public health data in community settings; how public health data are used for epidemiological investigations and prevention programs. Offered spring semesters. Pre- or corequisites: 171:161 and 173:140.

173:150 Introduction to Clinical Epidemiology 2 s.h.
Concepts, methods, and examples of clinical measurement, clinical diagnosis, risk, prognosis, study design, biological markers, decision analysis, meta-analysis. Offered fall semesters. Pre- or corequisites: 171:161 and 173:140.

173:151 Patient-Oriented Research Didactic 3 s.h.
Same as 050:220.

173:152 Clinical Research Career Development 1 s.h.
Knowledge necessary for careers in academic clinical research.

173:155 Diagnostic Microbiology for Epidemiology 3 s.h.
Introduction to microbiological culture, antigen detection, immunological, and molecular amplification laboratory techniques for bacteria, viruses, fungi, and parasites. Offered spring semester. Prerequisite: 061:103 or 061:112 or 061:157 or 061:164.

173:160 Introduction to Epidemiologic Data Analysis With Computers 2 s.h.
Organization, collection, management, and analysis of epidemiological data using computer programs. Offered fall semesters. Pre- or corequisites: 171:161 and 173:140.

173:161 Patient-Oriented Research Data Analysis 3 s.h.

173:170 Injury Prevention and Control 3 s.h.
Theory, research, and practice of injury control; unintentional and intentional injuries; local, national, international injury issues. Offered fall semesters. Same as 175:170.

173:175 Research Methods in Disaster Studies 3 s.h.
Epidemiologic study of disasters and their health consequences; research to identify and reduce health effects, research in context of response and preparedness. Offered spring semester. Same as 175:175.

173:190 Problems and Special Topics in Epidemiology 2 s.h.
Didactic material in epidemiology; may include tutorial, seminar, faculty-directed independent work (e.g., literature search, project, short research project).

173:195 Preceptorship in Epidemiology 1 s.h.
Quantitative research-oriented project performed with a preceptor; preparation of reports, presentation of research results in a departmental seminar.

173:199 Practicing Evidence-Based Public Health 3 s.h.
How epidemiologic and other scientific studies underlie public health practice; relationship between evidence and action; controversies at interface of science and policy. Offered spring semester.

173:200 Independent Study in Epidemiology 1 s.h.
In-depth pursuit of an area of special interest in epidemiology requiring substantial creativity and independence. Repeatable.

173:205 Research in Epidemiology 1 s.h.
Research that may lead to a dissertation. Repeatable.

173:210 Writing a Research Protocol 3 s.h.
Small group projects to develop research protocols using epidemiological study designs; presentation and defense of proposals before faculty. Offered fall semesters of even years. Prerequisites: 171:161, 173:140, and 173:240.

173:225 Genetics and Epidemiology 4 s.h.
Basic human genetic and population genetics principles; methods of integrating genetic principles into epidemiological studies; analytical methods for family data. Offered spring semesters. Prerequisites: 171:161 and 173:140, or consent of instructor. Same as 165:270.

173:230 Principles of Dietary Assessment 1 s.h.
Overviews of dietary assessment methods; evaluation of dietary records; dietary recall, food frequency questionnaires, brief dietary scanners, nutrition database, nutrient intakes standards. Offered spring semester. Prerequisite: 3 s.h. of college nutrition courses.

173:235 Nutritional Epidemiology 2 s.h.
Application of epidemiology study designs to nutrition variables and chronic disease; analysis of nutrition epidemiology studies; research protocol design. Offered spring semesters. Recommended: a basic nutrition course.

173:236 Nutrition Intervention in Clinical Trials Research 2 s.h.
Nutrition interventions in clinical trials; disease related to nutrition variables; research that links effects of diet on chronic diseases. Offered fall semesters. Recommended: a basic nutrition course.

173:237 Nutrition Intervention in Research Lab 3 s.h.
Development, demonstration, and group counseling skills in ongoing nutrition research projects at The University of Iowa. Offered fall semesters. Pre or corequisite: 173:236 or consent of instructor.

173:240 Epidemiology II: Advanced Methods 3 s.h.
Epidemiologic study design and analysis; bias, confounding, effect modification; matching; descriptive studies; case-control studies; cohort studies; measurement principles; data sources, questionnaire design, conduct of surveys, relation to disease classification, acute and chronic disease examples. Offered spring semesters. Prerequisites: 171:161 and 173:140.

173:241 Epidemiology II: Advanced Methods Lab 2 s.h.

173:245 Epidemiology of Physical Activity 3 s.h.
Same as 028:249.

173:251 Injury Epidemiology 3 s.h.
How epidemiology can be applied to injury prevention and control; epidemiology literature, specific methodological problems involved in the epidemiology of injuries, critical evaluation of research articles. Offered spring semesters of odd years. Prerequisite: 173:140 or consent of instructor. Same as 175:251.

173:253 Epidemiology of Occupational Injuries 3 s.h.
Epidemiological literature on occupational injuries and their prevention; focus on research methods. Offered spring semesters of even years. Prerequisite: 173:140 or consent of instructor. Same as 175:253.

173:255 Epidemiology of Infectious Disease 3 s.h.
Underlying epidemiological concepts of infectious disease, including causation and surveillance; prevention and control, case studies. Offered fall semesters. Prerequisite: 173:140 or equivalent. Same as 152:257.

173:260 Epidemiology of Chronic Diseases 3 s.h.
Chronic disease epidemiology, survey and biological methods for exposure measurement in epidemiologic studies; leading chronic diseases, measurement of disease, lifestyle, nutrition, occupation, family history. Offered spring semesters. Prerequisite: 173:140 or equivalent. Consent of instructor.

173:261 Epidemiology of Aging 1-2 s.h.
Epidemiologic methods for studying health and social problems of older persons; applications including research and public health practice and policy. Offered fall semesters. Prerequisite: 173:140. Same as 153:261.

173:262 Neuroepidemiology 1 s.h.
Basic epidemiology concepts applied to neurologic diseases; concepts, methods, examples of neuroepidemiology; various diseases, methods. Offered spring semester. Prerequisite: 173:140.

173:263 Epidemiology of Reproductive Diseases 2 s.h.
Evaluation of methodological issues and current findings for reproductive diseases and conditions; etiologic mechanisms, including behavioral and genetic. Offered fall semesters. Prerequisite: 173:140.

173:265 Cardiovascular Disease Epidemiology 3 s.h.
Natural history of atherosclerotic disease and human factors affecting its development; atherosclerotic disease in varied populations worldwide and communities in United States; clinical trials to delay onset, reduce incidence, improve outcome of cardiovascular disease. Offered fall semesters. Prerequisites: 171:161 and 173:140.

173:267 Psychiatric Epidemiology 3 s.h.
Population-based studies of psychiatric disorders and associated etiologic tools; diagnostic criteria used in psychiatric research, common structured interviews and rating scales; recent research relevant to common psychiatric disorders; experience writing a research idea using NIH PHS grant form. Offered spring
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sugest: 173:140 or consent of instructor. Recommended: 173:240 at two years of resident training in psychiatry. Same as 073:255.

173:270 Cancer Epidemiology and Control 3 s.h.
Incidence, mortality, survival; risk factors, cancer control options for major cancer sites; principles and methods of cancer registration in Iowa. Offered spring semesters of even years. Prerequisites: 171:161 and 173:140.

173:276 Health Care Utilization Outcomes 3 s.h.
Research tools to assess changes in health care use and cost as outcomes of treatment, evidence-based medicine, meta-analysis, decision trees, cost-of-illness analysis, cost effectiveness models. Offered fall semesters. Same as 174:268.

173:280 Introduction to Health Care Organization and Policy 3 s.h.
Basic arrangements of services in the United States; social, political, psychological, economic forces that shape health services; determinants of use, amounts, types of health resources available, financing methods, government regulation; current issues. Offered fall semesters. Same as 174:200.

173:285 Outcomes Research 2-3 s.h.
Conceptual underpinnings and collection of valid outcomes and data, use of outcomes data in clinical care and population-based care management, intracacies of research methodology and health-related quality of life assessment. Offered spring semesters. Prerequisites: introductory research methods (e.g., 173:140).

173:290 Intervention and Clinical Trials 3 s.h.
Methodologic introduction to rationale, design, conduct, analysis, and presentation of clinical trials; basics of clinical trial design, varieties of designs, examples from clinical trials; biostatistical methods, including survival analysis. Offered fall semesters. Prerequisites: 171:161 and 173:140, or equivalents. Same as 171:267.

173:291 Pharmacoeconomics 3 s.h.
Drug appraisal process, methods for identification and attribution of adverse drug events, current understanding of the epidemiology of adverse drug events; study designs, data sources for pharmacoeconomics. Offered fall semesters of even years. Prerequisite: 173:140.

Repeatable.

173:320 Teaching in Epidemiology 3 s.h.

173:340 Epidemiology III: Theories 3 s.h.
How epidemiology fits into the wider context of scientific inquiry. Offered fall semesters of odd years. Prerequisites: 171:241, 173:140, and 173:240.

174:100 Executive Seminar Series 0 s.h.
Readings in current issues in health care. Offered fall and spring semesters. Same as 174:205.

174:203 Strategic Planning and Marketing 3 s.h.
Research tools to assess changes in health care use and cost as outcomes of treatment, evidence-based medicine, meta-analysis, decision trees, cost-of-illness analysis, cost effectiveness models. Offered fall semesters. Same as 174:268.

174:205 Issues in Health Management and Policy 3 s.h.
Students work carefully with their advisers to create plans of study that incorporate required courses and further individual students' career goals. Through elective course work, students may develop an emphasis in areas of special interest such as operations management, rural health, managed care, financial management, or aging.

During the first year, students are introduced to the social, political, economic, and financial environments of health care organizations. The concepts, tools, and techniques of effective managerial decision making, planning, and control also are presented.

During the second year, students pursue in-depth applications of management concepts and develop skills in areas relating to their special interests and career objectives.

Core courses in management, economics, law, managerial finance, and financial accounting provide students with necessary business skills. Students also may take course work in other areas of business and in urban and regional planning.

REQUIRED COURSES

06N:215 Corporate Financial Reporting 3 s.h.
06N:216 Data and Decisions 3 s.h.
06N:225 Managerial Finance 3 s.h.
171:161 Introduction to Biostatistics 3 s.h.
173:140 Epidemiology I: Principles 3 s.h.
174:100 Executive Seminar Series 0 s.h.
174:200 Introduction to Health Care Organization and Policy 3 s.h.
174:201 Health Care Management 3 s.h.
174:203 Strategic Planning and Marketing 3 s.h.
174:204 Quantitative Management in Health Care 2 s.h.
174:205 Issues in Health Management and Policy 3 s.h.
174:208 Health Services Information Systems 2 s.h.
174:212 Health Economics I 3 s.h.
174:216 Financial Management of Health Institutions 3 s.h.
174:218 Topics in Health Administration 1 s.h.
174:221 Evaluation and Outcomes in Health Care 2 s.h.
174:223 Seminar in Health Care Ethics 2 s.h.
174:224 Human Resources for Health Organizations 2 s.h.
174:237 Legal Aspects of Health and Medical Care 3 s.h.
174:243 Introduction to Health Policy: Process and Context 1 s.h.

ELECTIVES

Students choose 12 s.h. of course work, which must include 6 s.h. taken in the Department of Health Management and Policy.

Summer Internships, Fellowships, Residencies

The department facilitates placement of master's degree students in optional summer internships between the first and second years of study. Summer internships offer students the opportunity for practical experience outside the classroom, observing and interacting with executives in a health care setting. Internships are full-time positions that usually last 10-12 weeks. Students normally receive a salary or stipend, and in some cases, assistance with living arrangements. Internships may carry 3 s.h. of credit.

Many master's degree students choose to complement their academic training with a postgraduate fellowship or residency. Such
experiences afford a valuable means of observing, developing, and demonstrating practical management techniques and skills as well as developing connections with colleagues. The department takes an active role in helping students identify and secure fellowship and residency positions.

**Joint Master’s Degrees**

Students who wish to pursue an integrated program combining a graduate degree in health management and policy with a degree in another field should discuss their plans with both academic units and indicate their interest when submitting application materials.

**Business**

Students interested in combining the traditional strengths of health management and policy with greater exposure to advanced management techniques should consider the joint master's degree program with the Tippie College of Business.

This combination leads to an M.H.A. in health management and policy and an M.B.A. in business administration. It requires 75 s.h. and can be completed in two-and-a-half years. Separate admission to each degree program is required.

**Law**

The joint program with the College of Law is highly individualized, allowing students to gain in-depth exposure to and training in both health care management and law.

A minimum of 126 s.h. must be earned in order for both degrees to be awarded. Students register only for law courses during their first year. Completion of the program usually requires four years, but students who enroll in the accelerated law program may complete it in less time. The program leads to an M.H.A. in health management and policy and a J.D. in law. Separate admission to each degree program is required.

**Urban and Regional Planning**

Students interested in developing special expertise in community and health planning may pursue a joint master's degree with the program in Urban and Regional Planning. The M.A. in urban and regional planning prepares students to develop public policy alternatives that help improve the quality of life in cities and throughout regions.

The program, which requires 76 s.h., leads to an M.H.A. in health management and policy and an M.A. in urban and regional planning. Separate admission to each degree program is required.

**Doctor of Philosophy**

The Ph.D. program, established in 1950, was the nation’s first doctoral program in health care management. Students earn the Ph.D. in health management and policy, which prepares students for careers in health services research, education, and policy leadership in universities, government agencies, and health organizations. The program draws upon faculty members who are committed to interdisciplinary scholarly inquiry and research. Individual plans of study allow students to prepare for specific careers, and small class size encourages frequent student-faculty interaction, including participation in research projects as well as scholarly publications.

The program is strongly oriented toward applied, interdisciplinary research. Students develop mastery of theories and research methodologies necessary to study the complex American health system.

The Ph.D. program requires at least 90 s.h. Up to 30 s.h. of transfer credit may be awarded for previous master’s degree course work.

**REQUIRED COURSE WORK**

Ph.D. students take course work in core content areas covering health care systems, health care management, health economics, and health policy. Courses in research design and statistical analysis are required. Students may waive specific courses, depending on their background.

**CONCENTRATIONS**

Ph.D. students choose one of four concentrations: health economics, health outcomes, health policy, and management and organization studies. In special circumstances, students may design their own concentrations, subject to faculty approval.

**EXAMINATIONS**

All doctoral students must pass a preliminary examination that tests the student's mastery over core material covered in the first year of course work in the department, including American health systems and health services research methods. Students take the preliminary exam after completing their first two semesters of course work.

The comprehensive examination focuses on the second-year courses in the student's chosen concentration. Students take it at or near the end of their formal course work.

**DISSERTATION**

Doctoral candidates prepare dissertations based on original research that tests, extends, or applies concepts or principles to a problem in health care.

**Financial Support**

Every effort is made to provide financial support to students who demonstrate need and maintain satisfactory academic standards. In addition, some awards are offered in recognition of outstanding scholarship and experience, regardless of need. Financial assistance is available in a variety of forms, including scholarships and awards, student loans, and research assistantships.

Research assistantships generally are awarded each academic year on the basis of student merit and the department’s need. Assistantships afford valuable experience in health services research and management projects. Research assistants work 10-20 hours per week and must apply for reappointment each year. Appointment as a research assistant provides a stipend and entitles students to resident tuition.

Opportunities also exist for part-time employment both on and off campus. Further
information and application forms for financial aid are available from the Office of Student Financial Aid.

**Alumni Association**

An active alumni association supports the program in a number of ways, including scholarships, consultation on curriculum, continuing education, research, and fund development. The association also functions as a network for persons entering the profession. Alumni serve as visiting faculty, consultants, mentors, and providers for summer internships, residencies, and fellowships.

Graduates maintain their Iowa connection and learn about news of their classmates, the department, and faculty members and students through the Alumni Newsletter. The department’s alumni association also publishes the Alumni Directory.

The Department of Health Management and Policy and its alumni association jointly sponsor the Annual Health Care Executive Symposium each fall. Renowned speakers from around the country address a variety of symposium topics. Health care leaders, alumni, educators, students, and friends of the department attend the symposium, which offers students a high quality educational experience in addition to the opportunity to network with faculty and alumni.

**Center for Health Policy and Research**

The Center for Health Policy and Research is the research arm of the Department of Health Management and Policy and a University-wide interdisciplinary research facility. Faculty members from the Tippie College of Business, the Carver College of Medicine, and the Colleges of Dentistry, Liberal Arts and Sciences, Nursing, Pharmacy, and Public Health serve as investigators in a variety of studies. Master’s and doctoral students may have the opportunity to participate in ongoing research projects.

The center promotes collaboration among health organizations through frequent exchanges with professional and provider associations, policy and planning groups, insurance organizations, health delivery institutions, and other members of the health services research community. It also sponsors weekly seminars on current topics in health services and policy.

**Courses**

174:144 Health Policy in an Aging American Society 3 s.h.

Health policies most pertinent to Americans over age of 65.

174:170 Health Care and Health Reforms in Russia 3 s.h.

Same as 041:104, 152:170.

174:200 Introduction to Health Care Organization and Policy 3 s.h.

Organization of U.S. health care system, health policies that shape its development; historical, economic, political, environmental forces that influence the organization, financing, and delivery of personal and public health services; health services, policy concepts, and terminology, including health determinants, access to care, system integration, policy development, federalism. Same as 173:280.

174:201 Health Care Management 3 s.h.

Application of basic management principles such as leadership, goal setting, decision making, human resource management, to health care organizations. Prerequisite: consent of instructor.

174:202 Hospital Organization and Management 3 s.h.

Role of hospitals, governance, organizational structure, medical staff organization, departmental operations. Prerequisites: 174:200 and 174:201, or consent of instructor.

174:203 Strategic Planning and Marketing 3-4 s.h.

Management, marketing. Prerequisite: 174:201.

174:204 Quantitative Management in Health Care 2-3 s.h.

Quantitative analysis techniques used by managers in health care settings to assist with planning, decision making, resource allocation. Prerequisite: consent of instructor.

174:205 Issues in Health Management and Policy 3 s.h.

Integration and application of theories, concepts, principles; case studies. Prerequisite: 174:201 and consent of instructor.

174:206 Leadership in Health Care Organizations 2-3 s.h.

Management and leadership concepts and their application in health care organizations. Prerequisite: 174:201.

174:207 Group Practice and Ambulatory Care Administration 3 s.h.

Delivery of ambulatory health care services, for-profit, and not-for-profit organizations; emphasis on payment mechanism, compensation, structures, effects of managed care, other internal issues. Prerequisites: 174:200, 174:201, and 174:202; or consent of instructor.

174:208 Health Services Information Systems 2-3 s.h.

Conceptual, practical aspects of analysis, development, and use of computer-based information systems; emphasis on application to the health sciences environment.

174:212 Health Economics I 3 s.h.

Microeconomic principles for health care, health insurance, information and uncertainty, models of physician and hospital behavior, theory of the firm, market structure, regulation, competitive reform, managed care. Prerequisite: consent of instructor.

174:213 Health Economics II 3 s.h.

Economic theory and its application to health behavior, markets for health care and health insurance, public policy related to health. Prerequisite: 174:512 or consent of instructor.

174:214 Financial Accounting for Health Care Organizations 3 s.h.

Introduction to financial accounting practices in health care delivery organizations.

174:215 Managerial Finance 3 s.h.

Asset valuation, finance, capital budgeting under uncertainty, intertemporal efficiency, mergers and acquisitions.

174:216 Financial Management of Health Institutions 3 s.h.

Issues in working capital management, capital financing, cost analysis and rate setting, budgeting, reimbursement, management and contract reorganization, health care initiatives; emphasis on use of information from accounting, financial management systems. Prerequisite: consent of instructor.

174:217 Health Insurance and Managed Care 3 s.h.

History and theory of insurance, comparative health systems, health systems and networks, HMOs, public health insurance, care for uninsured; emphasis on public policy. Prerequisites: 046:263 or 174:212 or equivalent health economics course, and 174:200 or equivalent U.S. health care system course; or consent of instructor. Same as 152:317.

174:218 Topics in Health Administration 1-3 s.h.

Topics related to contemporary problems that concern health care students, administrators. Repeatable.

174:220 Advanced Topics in Managed Care 3 s.h.

Skill development for managed care, risk management, rate setting, contracting, equity evaluation, mergers and acquisitions, regulatory issues; for advanced students. Prerequisite: 174:216 or consent of instructor.

174:221 Evaluation and Outcomes in Health Care 2-3 s.h.

Qualitative and quantitative methods for evaluating health care quality, effectiveness; program evaluation, health outcomes, clinical and cost effectiveness, evaluation across health care delivery systems. Prerequisite: 174:102 or 174:200 or consent of instructor.

174:223 Second Year in Health Care Ethics 2-3 s.h.

Biomedical and organizational ethics in the contemporary health care environment; ethical concepts and principles, ethical issues that confront executive, clinical, and governance leaders in complex health organizations. Prerequisite: consent of instructor.

174:224 Human Resources for Health Organizations 2-3 s.h.

Overview of human resource management theories and practices for health care organizations; strategic human resource management, equal employment, staffing, training and development, appraisal, compensation. Prerequisite: 174:201 or consent of instructor.

174:225 Topics in Health Care Information Systems 3 s.h.

Use of information technology in the health care system; computerized patient records, community health networks, patient confidentiality requirements, software for medical centers, current issues facing information systems executives. Prerequisite: consent of instructor.

174:226 Health Informatics I 3 s.h.

Technological tools that support health care administration, management, and decision making. Prerequisites: graduate standing or consent of instructor. Same as 068:225, 021:275, 050:283, 051:187, 056:186, 074:191, 096:283.

174:228 Cost Effectiveness and Decision Analysis 3 s.h.

Methods of cost-effectiveness analysis and decision analysis; applications to resource allocation decisions in public health and medicine.

174:234 Alumni Graduation Diploma 3 s.h.

174:235 Administrative Residency/Fellowship 3 s.h.

174:236 Administrative Practicum 3 s.h.

Experience with operational and planning matters in a health care setting. Second-year standing required. Prerequisite: g.p.a. of at least 3.00 for two consecutive semesters.

174:237 Legal Aspects of Health and Medical Care 3 s.h.

Statutory, common law frameworks applicable to health care system; court decisions that illustrate applications of general legal doctrines in hospital, health settings. Prerequisite: consent of instructor.

174:242 Federalism and Health Policy 3 s.h.

How American government’s organization shapes development and implementation of health policy, programs, services.

174:243 Introduction to Health Policy: Process and Context 1-3 s.h.

Policy process, policies and programs that shape provision of health care in the United States; health policies such as Medicare, Medicaid, Older Americans Act.

174:245 Seminar in Health Policy 3 s.h.

Contemporary health policy issues; theoretical and applied perspectives. Prerequisite: 174:242 or consent of instructor.

174:247 Nonprofit Organizational Effectiveness I 3 s.h.


174:248 Nonprofit Organizational Effectiveness II 3 s.h.

Qualities for leadership of nonprofit organizations, including relationships with staff and volunteers, relationships of nonprofits to outside world; marketing, public relations, advocacy strategies for nonprofits. Prerequisite: 061:247 or 024:247 or 174:247. Same as 061:248, 021:265, 024:248, 028:258, 032:228, 042:248, 091:322.

174:251 Planning and Market Research for Health Systems 3 s.h.

Conceptual framework, empirical base for analyzing organization and delivery of medical care; literature, policy regarding
OCCUPATIONAL AND ENVIRONMENTAL HEALTH

Head: Craig Zwerling

Professors: Peter Blandc (Law/Psychology), Thomas Cook (Physical Therapy), Kelley Donham (Nursing), Laurence Fuortes (Internal Medicine/Epidemiology), Fredric Gerr (Internal Medicine), James Merchant (Internal Medicine/Nursing), Gene Parkin (Civil and Environmental Engineering), Corinne Peck-Ash (Epidemiology/Nursing), Larry Robertson, Jerald Schnoor (Civil and Environmental Engineering), Nancy Sprince (Internal Medicine/Nursing), Peter Thorne (Civil and Environmental Engineering), Craig Zwerling (Internal Medicine/Epidemiology)

Professors emeriti: Clyde Berry, William Hauser, L.W. Knapp Jr., Keith Long, Donald Morgan

Associate professors: George Breuer, Vijay Goel, John Frederic Green, Nelson Moyer

Clinical professor: Mary Gilchrist (Health Management and Policy)

Associate professors: Henri Cuddihy (Internal Medicine), Kenneth Cul (Nursing), William Field (Epidemiology), William Heitbrink, Paul James, Joel Kline (Internal Medicine), John Lee (Mechanical and Industrial Engineering), Patrick O'Shaughnessy (Civil and Environmental Engineering), Wayne Sanderson (Epidemiology), David Wilder (Biomedical Engineering)

Clinical professor: Franklin Kilarick

Clinical professors: Craig Bainbridge, Burton Kress, James McGoohan, Michael Rossman

Clinical assistant professors: Mony Menhusen (Anesthesiology), David Osterberg

Assistant professors: Daniel Anton, Gabriele Ludewig, Thomas Peters, Thomas Schnell (Mechanical and Industrial Engineering)

Adjunct assistant professors: Chandran Achutan, Daniel Hoib, Frank LAnne, Hans-Joachim Lehmet, Murray Madison, Shannon Marquez, Carla O'leary, John Rosecrance, Donald Simmons, Laurie Taylor, Roberta Till-Retz, John Vargo, Peter Weyer, Michael Wichman, Catherin Zeman

Clinical assistant professors: Risto Rautainen, Pamela Willard (Nursing)

Graduate degrees: M.P.H., M.S., Ph.D. in Occupational and Environmental Health

Web site: http://www.public-health.uiowa.edu/oh

The Department of Occupational and Environmental Health focuses on assessment of risk factors in the physical environment and their relationship to disease—particularly health problems of technological and industrial workers. Students are guided by faculty members whose research interests include rural health care delivery, occupational health, environmental health, occupational medicine, occupational lung disease, mammalian toxicology, inhalation toxicology, ergonomics, indoor air quality, occupational injury, injury epidemiology, injury prevention programs, aerosol physics, air and water quality, environmental chemistry, analytical toxicology, and environmental health in developing countries.

The department offers three graduate degrees: Master of Public Health, Master of Science, and Doctor of Philosophy in Occupational and Environmental Health. All degrees provide an optional emphasis in industrial hygiene and ergonomics. A joint master's degree program with the Program in Urban and Regional Planning also is available.

Individuals who are not pursuing a degree in the department but who wish to register for elective courses may apply for professional improvement status. The department also offers an occupational medicine residency training program. WORKSAFE IOWA, administered through the department, offers continuing education outreach programs throughout the year.

Master of Public Health

For information about this degree, see “Master of Public Health (M.P.H.),”

Master of Science

The M.S. degree requires 38 s.h. All master's degree students are required to complete a thesis.

REQUIRED COURSES

One of these: 069:133 Introduction to Human Pathology 3 s.h. 096:114 Human Pathophysiology: Organ Systems 3 s.h.

All of these: 171:161 Introduction to Biostatistics 3 s.h. 173:140 Epidemiology I: Principles 3 s.h. 175:180 Occupational and Environmental Health Seminar (taken three times, for 1 s.h. the first time and 0 s.h. the second and third) 1 s.h. 175:197 Environmental Health 3 s.h. 175:230 Occupational Health 3 s.h. 175:260 Environmental Toxicology 3 s.h.

ELECTIVES

Elective courses fill the semester-hour requirement for the degree. Students and their advisors select courses appropriate to the student's professional goals. Any courses offered by the College of Public Health that the student has not already taken as a required course may be used as an elective, with the advisor's approval.

THESIS

Students may earn up to 6 s.h. for the master's thesis. 175:300 Thesis/Dissertation arr.

Industrial Hygiene Emphasis

The department offers an industrial hygiene emphasis in the M.S., to prepare students for professional careers in industrial hygiene as well as the broad field of occupational and environmental health. Career opportunities are available in the health and safety departments of industries; in consulting firms; in academic institutions; and in local, state, and federal public health agencies.

The M.S. industrial hygiene emphasis requires a minimum of 43 s.h. A thesis is required.

Requirements for the M.S. with industrial hygiene emphasis are as follows.

REQUIRED COURSES

171:161 Introduction to Biostatistics 3 s.h. 173:140 Epidemiology I: Principles 3 s.h. 175:180 Occupational and Environmental Health Seminar (taken twice, for 1 s.h. the first time and 0 s.h. the second) 1 s.h. 175:190 Occupational Ergonomics I 3 s.h. 175:192 Occupational Safety 3 s.h. 175:197 Environmental Health 3 s.h. 175:230 Occupational Health 3 s.h. 175:231 Industrial Hygiene I: Recognition 3 s.h. 175:232 Industrial Hygiene II: Evaluation 4 s.h. 175:233 Industrial Hygiene III: Control 3 s.h. 175:260 Environmental Toxicology 3 s.h.
THESS

Students may earn up to 6 s.h. for the master’s thesis.


Joint Master’s Degree

A joint master’s degree is available with the Program in Urban and Regional Planning (see Graduate College section of the Catalog). Students who choose this option earn an M.A. in planning and an M.S. in occupational and environmental health. Separate admission to each program is required. The combined degree requires a minimum of 60 s.h. of course work.

Doctor of Philosophy

The Ph.D. program prepares students for professional and academic careers in environmental and occupational health. The degree requires 72 s.h. All doctoral students must complete a dissertation—a substantial scholarly treatise. Requirements for the Ph.D. are as follows.

REQUIRED COURSES

One of these:
096:114 Human Pathophysiology: Organ Systems 3 s.h.
096:133 Introduction to Human Pathology 3-4 s.h.

All of these:
171:197 Environmental Health 3 s.h.
173:140 Epidemiology I: Principles 3 s.h.
175:180 Occupational and Environmental Health Seminar (taken three times, for 1 s.h. the first time and 0 s.h. the second and third) 1 s.h.
175:197 Environmental Health 3 s.h.
175:230 Occupational Health 3 s.h.
175:231 Industrial Hygiene I: Recognition 3 s.h.
175:233 Industrial Hygiene II: Control 3 s.h.
175:235 Occupational and Environmental Health Seminar 3 s.h.
175:252 Environmental Toxicology 3 s.h.
175:260 Environmental Toxicology 3 s.h.

ELECTIVES

Elective courses fill the semester-hour requirement for the degree. Students and their advisers select courses appropriate to the student’s professional goals. Any course offered by the College of Public Health that the student has not already taken as a required course may be used as an elective, with the adviser’s approval.

DISSERTATION

Students may earn up to 12 s.h. for the doctoral thesis.


Industrial Hygiene Emphasis

The department offers an industrial hygiene emphasis in the Ph.D., to provide doctoral students with specialized knowledge in industrial hygiene in addition to their expertise in the broad field of occupational and environmental health.

Requirements for students working toward the Ph.D. with industrial hygiene emphasis are as follows.

REQUIRED COURSES

171:161 Introduction to Biostatistics 3 s.h.
173:140 Epidemiology I: Principles 3 s.h.
175:180 Occupational and Environmental Health Seminar (taken three times, for 1 s.h. the first time and 0 s.h. the second and third) 1 s.h.
175:190 Occupational Ergonomics I 3 s.h.
175:192 Occupational Safety 3 s.h.
175:197 Environmental Health 3 s.h.
175:209 Rural Health and Agricultural Medicine 3 s.h.
175:230 Occupational Health 3 s.h.
175:231 Industrial Hygiene I: Recognition 3 s.h.
175:233 Industrial Hygiene II: Control 3 s.h.
175:235 Environmental Health Seminar 3 s.h.
175:260 Environmental Toxicology 3 s.h.

Two courses from the specialty areas of advanced biostatistics and specialized epidemiology

DISSERTATION

Students may earn up to 12 s.h. for the doctoral thesis.


Admission

Detailed information about graduate study at The University of Iowa, including application requirements and procedures, is provided in the Manual of Rules and Regulations of the Graduate College; see the Graduate College section of the Catalog.

The occupational and environmental health faculty takes several factors into consideration when evaluating an application for admission, including Graduate Record Exam (GRE) General Test scores, grade-point averages, letters of recommendation, intent and motivation for graduate study, and research interests. A student with deficiencies in one area may be admitted if all other components of his or her application are very strong.

All master’s and doctoral program applicants must hold a baccalaureate degree and have a cumulative g.p.a. of at least 3.00 (for master’s applicants) or at least 3.25 (for doctoral applicants).

All applicants must have taken the GRE General Test. A minimum GRE score of 1600 (verbal plus quantitative plus analytical) is recommended for master’s applicants, 1650 for doctoral applicants. Students who do not hold a baccalaureate degree from an accredited college or university in the United States, the United Kingdom, Canada (except Quebec), Australia, or New Zealand are required to take the Test of English as a Foreign Language (TOEFL), earning a score of at least 600 on the paper-based exam or at least 250 on the computer-based exam. International applicants whose TOEFL scores range from 550 to 599 (paper-based) or 213 to 249 (computer-based) are required to take English fluency courses. Applicants whose TOEFL scores fall below those ranges are not considered for admission.

Undergraduate preparation for master’s applicants must include course work in mathematics, biological sciences, chemistry, and either physical sciences or engineering (requirements depend on the applicant’s chosen specialty area).

Master’s applicants who intend to pursue the industrial hygiene subtrack also must have taken physics and mathematics through calculus; course work in biological sciences, microbiology, and computer programming is highly recommended.

Completion of the master’s program before entry to Ph.D. study is recommended. Undergraduate preparation for doctoral applicants must include at least two semesters of chemistry, one semester of physics, and one semester of calculus. Course work in biological sciences, microbiology, and computer programming is highly recommended, particularly for students interested in some specialized areas.

APPLICATION DEADLINES

For fall entrance: April 1 for international applicants, July 1 for U.S. citizens and permanent residents

For spring entrance: October 1 for international applicants, December 1 for U.S. citizens and permanent residents

Financial Support

Several graduate student awards, including tuition and stipend support, are available for individuals interested in industrial hygiene, agricultural safety and health, ergonomics, or occupational injury prevention. Both stipend and tuition support are available for all occupational medicine residents. Full-time graduate students in good academic standing (those not admitted on conditional status) are eligible for a stipend and tuition support. All other students are eligible for tuition support only; requests are considered case-by-case. All recipients must be U.S. citizens or permanent residents.

Postdoctoral Positions

The Environmental Health Sciences Training Program at the University of Iowa College of Public Health offers postdoctoral positions in environmental health/toxicology. Appointments are made for two years with the possibility of an additional year. Applicants must be U.S. citizens or permanent residents.

Occupational Medicine Residency

The department offers residency training in occupational medicine in affiliation with The University of Iowa Hospitals and Clinics for physicians seeking specialty training in occupational medicine. For information contact the director of the Occupational Medicine Residency Program.
The Heartland Center
The Heartland Center for Occupational and Environmental Health is housed on the University's Oakdale Campus in the Institute for Rural and Environmental Health (IREH). College of Public Health-based laboratory facilities give researchers and students access to cutting-edge technologies for the study of occupational and environmental health.

The Inhalation Toxicology Facility (ITF), provides a full array of inhalation toxicology, aerosol science, and bioaerosol assay services. A primary focus of the ITF is the study of toxics found in the agricultural environment and related exposure situations. The facility is particularly well-equipped for studying organic dusts and bioaerosols.

The Occupational Hygiene Laboratory (OHL) provides expertise and equipment for exposure assessment in occupational settings. The OHL provides a range of sample collection capabilities and an extensive inventory of sampling equipment. The field and laboratory services available through the laboratory support exposure-response studies and control technology development studies in a variety of occupational arenas, including agriculture, construction, and indoor environments (home and office).

A computer laboratory is available for student use, and a library collection is located in the IREH.

Courses
175:101 Health, Work, and the Environment 3 s.h.
Current topics in occupational and environmental health, how the United States protects workers, protect people from environmental agents, and reduces environmental harm. Same as 044:174.

175:111 International Health 3 s.h.
Current health problems in the developing world and among disadvantaged populations in developed countries; biological, social, cultural, political aspects of international health problems; applications of research methods from epidemiology, environmental health, social sciences. Offered fall semesters. Same as 152:111, 173:111.

175:130 Applied Anthropology 3 s.h.
Practical health, environmental, and social problems viewed through an anthropological framework; how anthropological approaches are used to recognize, understand, and address applied problems; studies. Offered spring semesters. Same as 113:136.

175:170 Injury Prevention and Control 3 s.h.
Theory, research, and practice of injury control; unintentional and intentional injuries; local, national, international injury issues. Same as 173:170.

175:171 Problems in Occupational and Environmental Health 3 s.h.
Didactic material in occupational and environmental health, may include tutorial, seminar, faculty-directed independent work (e.g., literature search, project, short research project).

175:172 Independent Study in Occupational and Environmental Health 3 s.h.
In-depth pursuit of an occupational and environmental health requiring substantial creativity and independence.

175:175 Research Methods in Disaster Studies 3 s.h.
Epidemiologic study of disasters and their health consequences; research to identify and reduce health effects, research in context of response and preparedness. Same as 173:175.

175:180 Occupational and Environmental Health Seminar 0-1 s.h.
Contemporary topics in occupational health, agricultural and comparative medicine, environmental health.

175:185 Occupational Health Research Seminar 2 s.h.
Tools necessary for making critical assessment of published scientific research; examples from recently published research studies in occupational and environmental health. Corequisites: 171:161 and 173:140.

175:190 Occupational Ergonomics I 3 s.h.
Principles of ergonomics, with focus on physical capabilities of workers and their interactions with their work environment; physiological basis of work, patterns of work, occupational risk factors for musculoskeletal and neurovascular disorders, workplace and equipment design, integration of ergonomics in manufacturing processes.

175:192 Occupational Health Seminar 3 s.h.
Principles and practices of occupational safety; applications in industrial and other occupational settings; interactions with other disciplines. Offered fall semesters.

175:195 Global Environmental Health 2 s.h.
Current problems, including transboundary movement of pollutants, vectors of infectious agents, global warming and climatic change. Prerequisite: 175:111 or 175:197 or consent of instructor.

175:196 Agricultural Safety: Theories and Practice 3 s.h.
General theories and practice of injury prevention from varied fields, including industrial safety, engineering, regulation, education, epidemiology, social psychology; strategic application in agriculture.

175:197 Environmental Health 3 s.h.
Survey of the field of public health; issues of contemporary human health and environmental issues associated with biological, chemical, physical factors of environment; critical review of environmental factors that affect health; public policy, recognition, intervention, control. Offered fall semesters.

175:198 Solid and Hazardous Wastes 3 s.h.
Sources, characteristics, collection and disposal of solid and hazardous wastes; environmental impacts of hazardous waste management; resource recovery systems. Offered spring semesters. Prerequisite: 175:197 or consent of instructor. Same as 053:158.

175:199 Principles of Risk Assessment 3 s.h.

175:201 Research in Occupational and Environmental Health 3 s.h.
Research that may lead to a dissertation. Repeatable.

175:203 Preceptorship in Occupational and Environmental Health 3 s.h.
Work experience using knowledge and skills acquired in the classroom, arranged in conjunction with departmental or collegiate activities or with governmental agencies or private industry. Repeatable.

175:209 Rural Health and Agricultural Medicine 3 s.h.
Clinical orientation of specific health problems of rural residents, agricultural workers, rural health care delivery, socioeconomic issues in agriculture and their effects on health and safety of the agricultural population; occupational health problems, environmental hazards in rural areas. Offered spring semesters. Prerequisite: enrollment in medical curriculum or 173:140 or consent of instructor.

175:210 Current Topics in Agricultural Health 1 s.h.
Issues that affect the health of agricultural populations, such as agro-terrorism, antibiotic resistance, genetically modified organisms; current scientific literature.

175:230 Occupational Health 3 s.h.
Principles, practice of occupational medicine, fundamentals of industrial hygiene and safety, occupational health management, ergonomics, occupational health nursing. Offered fall semesters.

175:231 Industrial Hygiene I: Recognition 3 s.h.
Principles, with emphasis on recognition of chemical health hazards, physical health hazards at work. Offered fall semesters. Pre- or corequisite: 175:230.

175:232 Industrial Hygiene II: Evaluation 4 s.h.
Theory, methods of air sampling for evaluation of occupational, environmental exposures to chemical, physical, biological agents. Offered spring semesters. Prerequisite: 175:230.

175:233 Industrial Hygiene III: Control 3 s.h.
Concepts from physical sciences applied to control of individual hygiene hazards; focus on engineering ventilation controls; nonventilation controls, program management issues and skills. Offered spring semesters. Prerequisite: 175:230 or 175:231 or consent of instructor.

175:251 Injury Epidemiology 3 s.h.
How epidemiology can be applied to injury prevention and control; specific methodological problems involved in the epidemiology of injuries; epidemiology literature, critical evaluation of research articles. Offered spring semesters of odd years. Prerequisite: 173:140 or consent of instructor. Same as 173:251.

175:252 Theories of Environmental Policy and Assessment 3 s.h.
Major concerns in environment and human health, legislation enacted to deal with these concerns; emphasis on contemporary issues. Offered spring semesters. Prerequisite: 175:197 or consent of instructor. Same as 053:204, 152:252.

175:253 Epidemiological Analysis of Environmental Issues 3 s.h.
Epidemiological literature on occupational injuries. Offered spring semesters of even years. Prerequisite: 173:140 or consent of instructor. Same as 173:253.

175:260 Environmental Toxicology 3 s.h.
Sources, routes of absorption, effects of environmental toxins affecting man; pathophysiology of toxicant actions, including those of air and water pollutants, metals, pesticides, solvents, food toxicants, chemicals. Offered spring semesters. Prerequisite: college organic and inorganic chemistry, or physiology, or biochemistry.

175:270 Special Topics in Toxicology 2 s.h.
Genesis of toxicology as the science of poisoning, its application to murder, magic, medicine; use of natural products for gaining power, hunting, warfare, religion, witchcraft. Offered spring semesters of even years. Pre- or corequisite: 175:260.

175:294 Occupational Ergonomics II 3 s.h.
Application of ergonomic principles in varied work settings, through case study approach; participatory ergonomics, economics of ergonomics, workforce issues, psychosocial factors, shift work, integration of ergonomics into business models, current legislative issues, legal aspects of chronic injury, international perspectives; biomedical instrumentation used for risk factor exposure measurements.

175:295 Clinical Ergonomics 3 s.h.
Clinical orientation to specific ergonomic problems and issues; preparation for conducting independent on-site ergonomic evaluations in occupational settings; experience developing and evaluating ergonomic inventions in an occupational setting, rotation through an occupational medicine clinic. Prerequisite: 175:190 or consent of instructor.

175:299 Occupational Medicine Practicum 3 s.h.
Work experience in occupational medicine integrating core course material with aspects of occupational medicine practice and administration. Repeatable. Prerequisite: consent of instructor.

175:300 Thesis/Dissertation 3 s.h.
Repeatable.

175:996 Occupational Medicine 3 s.h.
In-depth study of an area in occupational and environmental medicine, with clinical experience in an outpatient community setting. Four-week course. Prerequisite: medical student.

482 College of Public Health • Occupational and Environmental Health

Facilities
The Department of Occupational and Environmental Health is housed on the University's Oakdale Campus in the Institute for Rural and Environmental Health (IREH). College of Public Health-based laboratory facilities give researchers and students access to cutting-edge technologies for the study of occupational and environmental health.

The Inhalation Toxicology Facility (ITF), provides a full array of inhalation toxicology, aerosol science, and bioaerosol assay services. A primary focus of the ITF is the study of toxics found in the agricultural environment and related exposure situations. The facility is particularly well-equipped for studying organic dusts and bioaerosols.

The Occupational Hygiene Laboratory (OHL) provides expertise and equipment for exposure assessment in occupational settings. The OHL provides a range of sample collection capabilities and an extensive inventory of sampling equipment. The field and laboratory services available through the laboratory support exposure-response studies and control technology development studies in a variety of occupational arenas, including agriculture, construction, and indoor environments (home and office).

A computer laboratory is available for student use, and a library collection is located in the IREH.

Graduate degree: Ph.D. in statistical genetics

Kai Wang
Associate professor:
Andrew George, Mark Logue, Jian Huang

Jian Huang

Jian Huang

Web site: http://www.public-health.iowa.edu/phpg
The Program in Statistical Genetics focuses on statistical genetics with applications to medical research, especially mapping and understanding genes related to common, complex human diseases. It also focuses on public health implications of genetics and genetics research.

The program offers a Ph.D. degree and a graduate certificate, both in statistical genetics.

**Doctor of Philosophy**

The Ph.D. program in statistical genetics prepares students for professional and academic careers in statistical genetics. It provides training in the development and evaluation of new statistical methods for analyzing human genetic data, and the application of those methods to discovering and understanding the genes underlying human disease. The program also prepares students to contribute to collaborative clinical research by providing them with training in genetics and with opportunities to participate in research involving collaboration with molecular and clinical geneticists and genetic epidemiologists.

A Bachelor of Arts or Bachelor of Science degree is required for admission.

The degree requires a minimum of 82 s.h. of course work. Students must successfully complete a comprehensive examination and a dissertation—a substantial scholarly treatise. The research topic and content must be approved by the student's dissertation committee.

**Requirements are as follows.**

**REQUIREIED COURSES**

Students who have not completed these courses, or their equivalents, before entering the Ph.D. program are required to complete them during Ph.D. study.

All of these:
- 171:173 Intermediate Design of Sample Surveys 3 s.h.
- 171:201-171:202 Biostatistical Methods I-II 8 s.h.
- 171:241 Statistical Methods in Epidemiology 3 s.h.
- 171:260 Statistical Methods in Clinical Trials 3 s.h.
- 173:140 Epidemiology I: Principles 3 s.h.
- 185:102 Introduction to Genetic Data Analysis 3 s.h.
- 185:104/22C:104 A Practical Introduction to Computer Science 3 s.h.

One of these:
- 096:114 Human Pathophysiology: Organ Systems 3 s.h.
- 096:115 Human Pathophysiology: Cellular/Neurology/Immunology 3 s.h.
- Two of these (6-7 s.h.):
  - 225:138 Bayesian Statistics 3 s.h.
  - 225:161 Applied Multivariate Analysis 3 s.h.
  - 225:255 Linear Models 4 s.h.
  - 171:104 Research Data Management 3 s.h.
  - 171:242 Applied Survival and Cohort Data Analysis 3 s.h.
  - 171:261 Survival Data Analysis 3 s.h.
  - 171:262 Analysis of Categorical Data 3 s.h.
  - 171:264 Longitudinal Data Analysis 3 s.h.

171:267 Intervention and Clinical Trials Methods 3 s.h.
173:240 Epidemiology II: Advanced Methods 3 s.h.
One of these:
- 070:110 Medical Genetics 2 s.h.
- 127:191 Human Molecular Genetics 3 s.h.
All of these:
- 002:128 Fundamental Genetics 4 s.h.
- 185:270 Genetics and Epidemiology 4 s.h.
- 185:272 Population and Quantitative Genetics 3 s.h.
- 185:274 Theory of Statistical Genetics 3 s.h.
- 185:276 Statistical Genetics Laboratory (may be taken three times) 3-9 s.h.
- 185:278 Computing Algorithms in Statistical Genetics 3 s.h.
- 185:280 Preceptorship in Statistical Genetics 3 s.h.
- 185:285 Clinical Genetics Practicum 1 s.h.
- 050:270 Responsible Conduct in Research 1 s.h.

**ELECTIVES**

Students must complete at least 12 s.h. of course work from this list. They may substitute other courses (up to a maximum of 6 s.h.) with written approval of the program's director and their advisers.

- 225:138 Bayesian Statistics 3 s.h.
- 225:161 Applied Multivariate Analysis 3 s.h.
- 225:255 Linear Models 4 s.h.
- 225:256 Multivariate Analysis 3 s.h.
- 171:261 Survival Data Analysis 3 s.h.
- 171:262 Analysis of Categorical Data 3 s.h.
- 171:264 Longitudinal Data Analysis 3 s.h.
- 185:101 Introduction to Genetics and Public Health 3 s.h.
- 185:103 Statistics in Bioinformatics 3 s.h.
- 185:282 Special Topics in Statistical Genetics arr.

**DISSERTATION**

185:300 Dissertation in Statistical Genetics 6 s.h.

The minimum credit required for the dissertation is 6 s.h.

The certificate requires the following course work.

- 070:110 Medical Genetics 2 s.h.
- 185:102 Introduction to Genetic Data Analysis 3 s.h.
- 185:270 Genetics and Epidemiology 4 s.h.
- 185:276 Statistical Genetics Laboratory 3 s.h.
- 185:280 Preceptorship in Statistical Genetics 3 s.h.
- 185:285 Clinical Genetics Practicum 1 s.h.

The preceptorship is in statistical genetics and must be approved by the director of public health genetics.

**Admission**

Detailed information about graduate study at The University of Iowa, including application requirements and procedures, is provided in the Manual of Rules and Regulations of the Graduate College; see the Graduate College section of the Catalog.

For information about admission to the Ph.D. or certificate program in statistical genetics, contact the program coordinator of public health genetics.

**Financial Support**

The program offers research assistantships, which provide financial support and resident tuition. They also offer valuable research training. Consideration for research assistantships is part of the application process. Opportunities also exist for funded postdoctoral fellowships. Contact the program coordinator for information about research assistantships and postdoctoral fellowships.

**Resources**

The Center for Statistical Genetics Research supports research on complex human inherited disease through basic methodological work in statistical genetics and promotion of interdisciplinary, collaborative, clinical-genetic research. The center provides opportunities for graduate students and postdoctoral fellows to be involved in research throughout their training.

**Courses**

- 185:101 Introduction to Genetics and Public Health 3 s.h.
  Interface between current research in genetics and public health practice; genetic concepts; screening, diagnosis, treatment of diseases. Offered spring semesters. Prerequisite: basic understanding of biostatistics and probability.

- 185:102 Introduction to Genetic Data Analysis 3 s.h.
  Analysis of genetic data using current statistical techniques; focus on applied aspects of genetic analysis. Offered fall semesters. Corequisite: 225:153.

- 185:103 Statistics in Bioinformatics 3 s.h.
  Basic statistical principles and techniques used in bioinformatics; statistical analysis of multiple DNA or protein sequences, methods of analyzing microarray gene expression data. Offered spring semesters. Prerequisites: 225:153 and 225:154, or consent of instructor.

- 185:104 A Practical Introduction to Computer Science 3 s.h.
  History of computing machinery; basic computer architecture, operating system concepts; preparation for applying computing techniques and methods in statistical genetics. Offered fall semesters. Prerequisite: graduate standing. Same as 22C:104.
185:270 Genetics and Epidemiology  4 s.h.
Review of basic human genetic and population genetics principles; methods of integrating genetic principles into epidemiological studies; analytical methods for family data. Offered spring semesters. Prerequisites: 171:161 and 173:140, or consent of instructor. Same as 173:225.

185:272 Population and Quantitative Genetics  3 s.h.
Fundamentals of population genetics; statistical modeling for quantitative genetic traits, including regression and components-of-variance methods; parametric and nonparametric likelihood theory in genetic modeling. Offered fall semesters of odd years. Prerequisites: 22S:153, 22S:154, and 185:270.

185:274 Theory of Statistical Genetics  3 s.h.
Theoretical development underlying core statistical genetics methods; focus on use of likelihood-based methods in segregation and linkage analysis in human genetics. Offered spring semesters. Prerequisites: 22S:153, 22S:154, and 185:102, or consent of instructor.

185:276 Statistical Genetics Laboratory  3 s.h.
In-depth discussion of data analytic problems that arise in genetic investigations of complex disorders in humans; hands-on experience in genetic data analysis; class projects. Repeatable. Offered fall and spring semesters. Prerequisite: 185:102.

185:278 Computing Algorithms in Statistical Genetics  3 s.h.
Computational methods in statistical genetics, including methods of multipoint linkage analysis, algorithms for pedigree calculations, Monte Carlo simulation techniques. Offered fall semesters of even years. Prerequisite: 185:274.

185:280 Preceptorship in Statistical Genetics  arr.
Individual work experience using statistical genetics knowledge and skill acquired in classroom. Prerequisite: consent of instructor.

185:281 Independent Study in Statistical Genetics  arr.
In-depth pursuit of an area of special interest in statistical genetics requiring substantial creativity and independence. Prerequisite: consent of instructor.

185:282 Special Topics in Statistical Genetics  arr.
Didactic material in statistical genetics that may include tutorial, seminar, or faculty-directed independent work. Prerequisite: consent of instructor.

185:285 Clinical Genetics Practicum  1 s.h.

185:290 Statistical Genetics Seminar  1 s.h.

Research that may lead to a dissertation. Prerequisite: consent of instructor.

185:300 Dissertation in Statistical Genetics  arr.
Work on Ph.D. dissertation with dissertation adviser. Prerequisite: consent of adviser.
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The University Honors Program is dedicated to the academic and personal enrichment of outstanding University of Iowa undergraduates in all colleges and majors. This enrichment is accomplished through special academic opportunities and cocurricular programs in which honors students are invited to participate.

University Honors Program (UHP) professional and student staff help honors students create their own personal honors curriculum and explore interests inside and outside the classroom. Honors students enjoy additional course options in research, writing, teaching, and independent study, as well as opportunities to work closely with professors and other honors students within existing courses. Cocurricular activities in foreign relations, the arts, diversity, volunteering, and more provide students with important experiences outside the classroom. By offering these academic opportunities and cocurricular programs, the University Honors Program strives to be a community of opportunity.

Students entering the University directly from high school are admitted automatically to the University Honors Program based on their high school rank and ACT or SAT score. National Merit Scholars, Presidential Scholars, Dean’s Scholars, and National Achievement Scholars also are admitted automatically to the Honors Program.

Entering students who are not admitted automatically may gain admission via a parallel process. This process requires a high school transcript, a letter of recommendation from a teacher, and a personal letter describing how the student would gain from the honors program.

Entering transfer students must have a cumulative g.p.a. of at least 3.50 and a total of at least 24 s.h. of college credit in order to be admitted to the University Honors Program. Transfer students with fewer than 24 s.h. of college credit are considered for honors program membership on the same basis as students entering the University directly from high school.

Membership in the University Honors Program is open to undergraduate students enrolled in the Tippie College of Business and the Colleges of Education, Engineering, Liberal Arts and Sciences, and Nursing. Beginning spring 2005, a cumulative University of Iowa g.p.a. of at least 3.33 (B+) will be required to enter or maintain membership in the honors program (the requirement through fall 2004 is a g.p.a. of at least 3.20). First-, second-, or third-year students are admitted to the honors program early in the spring semester of each academic year if their UI grade-point average meets the requirement.

### Academic Opportunities

The University Honors Program recognizes that students have different educational needs and goals. For this reason, the program offers a curriculum that is flexible, broad, progressive, and challenging. Honors course options begin as early as students’ first semester and continue through the last semester of the senior year. These options include a diverse set of academic courses as well as opportunities to work directly with faculty members as research assistants, teaching interns, and writing fellows for credit toward graduation.

While the choices are many, there are no required courses for students in the honors program. Students are free to design a curriculum that best suits their background and interests. They may select honors options to meet the requirements of the General Education Program, their major department(s), or elective credit. The Academic Advising Center, departmental honors advisers, and honors program staff are all available to help students develop an appropriate plan of study.

Each semester the program features a variety of honors seminars—introductory courses on exciting topics in the humanities, social sciences, and natural sciences. The seminars, which are small and highly interactive, cover new topics each semester. In addition to the honors seminars, individual departments offer courses in a wide range of subject areas for honors credit, from lab and discussion sections of introductory courses to specialized studies for students within their disciplines. Finally, students can turn any non-honors course into an honors course through honors designation, which allows students to delve more deeply into a topic, under the instructor’s guidance, by developing a plan of study that goes beyond the course requirements.

### Honors Commendation

Students who complete at least 12 s.h. of honors course work with a grade of B or higher in each graded course before they have completed their second year or their first 59 s.h. (whichever comes last) receive Honors Commendation. Honors Commendation includes a certificate of commendation from the honors program and the University president.

### Honors in the Major

Most majors offer upper-level honors courses, honors seminars, independent research, and/or the opportunity to pursue an original senior honors thesis or project under the guidance of a faculty member. Each college and department determines its own requirements for graduation with honors, and faculty members in each department serve as honors advisers. After students declare a major in the College of Liberal Arts and Sciences or enter the Tippie College of Business or the Colleges of Education, Engineering, or Nursing, they should speak with their collegiate or departmental honors adviser about their academic program.

### Graduation with Honors

Successful completion of all departmental and collegiate honors requirements leads to a baccalaureate degree with honors in the major. Students who graduate with honors receive special recognition during commencement, and their achievement is noted on their permanent academic record.

### Cocurricular Programming

University Honors Program professional and student staff are dedicated to providing a rich variety of activities for students outside the classroom. Participation is not required, but many honors students find cocurricular programming a great way to meet people, get involved, and learn more about the world around them.

The Arts Program sends groups of honors students to attend music, dance, and theater events at the University and in the community. Students have the opportunity to interact with artists, faculty members, and other honors students through pre- and post-event discussions, lectures, and visits.

The Honors Diversity and Culture Series strives to expand the intellectual, emotional, and personal horizons of its participants. Discussions, lectures, and events cover issues ranging from socioeconomic class distinction, to religious and ethnic minorities in Iowa, to contemporary family structures, and more.

The Iowa City Foreign Relations Council hosts luncheon dialogues on relevant international issues. Past speakers include award-winning journalists; Nobel Peace Prize laureates; and seasoned diplomats, politicians, and analysts. Honors students have the unique opportunity to gain a more textured understanding of world affairs by hearing about them from expert speakers.

The Volunteer Program provides students with volunteer opportunities at various organizations in and around the Iowa City community. Students learn more about their community and its needs, often continuing to volunteer on their own.

The Presidential Scholars Program emphasizes community, cultural, and academic involvement while offering a unique team building component. As part of the program, scholars will have the opportunity to participate in cook-outs, Frisbee games, arts events, canoeing adventures, pizza parties, dinners with faculty, and volunteer projects.

The newsletter Honorable Mention is written, edited, and published four times a year by honors students. It informs, educates, and entertains, honors students, their families, and University staff and faculty.

The honors web site and electronic mailing list are designed to provide resources for honors students and to inform them about past, present, and future honors activities, scholarships, seminars, and opportunities.

The University Honors Program advises five major national and international honor societies: Phi Beta Sigma, National Society of Collegiate Scholars, Golden Key, Mortar Board, and Omicron Delta Kappa. These societies provide select students the opportunity to lead, serve their community, and cultivate academic excellence.
Scholarship Advising
The honors program helps students prepare to apply for a variety of scholarship awards and prizes. The program offers its own scholarships of $1,000 to $3,000 to selected continuing honors students in all colleges, as well as research grants for students working to complete senior honors theses or projects. These awards are made possible in part by a bequest from Professor Rhodes Dunlap, the program’s founder and director for more than 20 years. Announcements concerning honors program scholarships are made through the honors program newsletter and electronic mailing list. The program does not offer scholarships to incoming first-year or transfer students.

Students from the University Honors Program are awarded national and international scholarships each year. Information, advice, and encouragement for potential Rhodes Scholars, Marshall Scholars, Truman Scholars, Goldwater Scholars, and others are available through the honors program.

Honors Learning Communities
The Honors Learning Communities bring together students living on honors floors in Daum and Hillcrest residence halls for a variety of cultural, academic, and social events. Daum Hall provides honors floors open to first-year students and is connected by a skywalk to the new Blank Honors Center. The Hillcrest Hall honors floor houses transfer students.

The learning communities in both halls offer students the chance to socialize and study with other honors students and to participate in programs such as group outings to arts events, workshops on scholarship and research opportunities, volunteer activities, and dinners with faculty members.

Blank Honors Center
In January 2004 the University Honors Program moved to the Blank Honors Center, a new facility dedicated to fostering a sense of community among honors students. The Blank Honors Center offers extended hours, social areas, a computer lab with 24 workstations, office space for honors societies, and administrative staff offices. The center also includes rooms for meetings, cultural or social events, and informational presentations. Honors program staff members are always on hand to help students.

Courses
Honors courses are open only to honors students.

143:024 Honors Service Learning
Service learning project arranged with a faculty member who certifies satisfactory completion of plan of study and service.

143:043 Honors Group Service Learning
Group service learning project arranged with a faculty member who certifies satisfactory completion of plan of study and service.

143:050 Honors Seminar in Humanities
Small-class experience with a faculty member on a central topic. GE: humanities.

143:060 Honors Seminar in Social Sciences
Small-class experience with a faculty member on a central topic. GE: social sciences.

143:070 Honors Seminar in Natural Sciences
Small-class experience with a faculty member on a central topic. GE: natural sciences.

143:100 Honors Research Practicum
Individual research performed in conjunction with a faculty member’s research.

143:101 Honors Teaching Practicum
Teaching internship in first- and second-year courses; may include providing tutorial assistance, conducting review sessions, and aiding in course organization.

143:102 Writing Fellows: Writing Theory and Practice
Preparation of honors students selected as writing fellows to serve as peer tutors in written composition classes; includes evaluation of drafts, peer tutoring with students. Prerequisites: Junior honors standing, admission to Writing Fellows Program, and availability to work as writing fellow in following semesters.

143:150 Honors Special Topics
Small-class experience with a faculty member on a central topic. Prerequisite: Junior or senior honors standing.

STUDY ABROAD PROGRAMS

Director: Janis Perkins
Web site: http://www.uiowa.edu/~uiabroad

The University of Iowa sponsors or co-sponsors a wide variety of study abroad programs. Summer, semester, academic year, and winter session programs in more than 40 countries complement and extend the University’s academic programs across the curriculum.

University of Iowa students also may participate in study abroad programs sponsored by other accredited U.S. and foreign institutions. Students should obtain advance approval of all transfer credit by completing a Study Abroad Credit Approval Form.

Information on University of Iowa and other study abroad programs is available at the Office for Study Abroad, 120 International Center.

Courses

165:105 International Student Exchange Program
Study on reciprocal exchange at foreign universities worldwide. Some instruction in English. Year-long, one semester, and summer options. Prerequisites: 40.0 h. of credit, g.p.a. of at least 3.00, and in some cases, command of a foreign language.

165:106 UK Exchange Program
Regular degree course work at the Universities of Hull and Lancaster (England) and the Universities of Strathclyde and Aberdeen (Scotland); humanities, social sciences, physical sciences, business, engineering. Prerequisite: 40.0 h. of credit and g.p.a. of at least 3.00.

165:107 Global Engineering Education Exchange
Seven levels of Japanese language and area studies at Nan- zan University’s Center for Japanese Studies, Nagoya; business and engineering classes, taught in English, at Tokio Denki University, School of Information Environment, fall, language and area studies at Nagoya University of Foreign Studies, year or spring; degree course work at Meiji University, Tokyo; language and culture classes at Kanda University of International Studies, Tokyo. Prerequisites vary by program.

165:112 The Iowa Exchanges
Choice of several institutions: University of Iceland; anthropological, Icelandic literature, linguistics, foreign languages; semester or year-long program. University of Niigata: Japanese studies, Americana, English literature. Prerequisites: 40.0 h. of credit, g.p.a. of at least 3.00, and in some cases, command of a foreign language.

165:113 French Studies
165:111 French Studies
Choice of several institutions: University of England; French thought in literature, film, philosophy, art, aesthetics; proficiency in French required. Prerequisites: g.p.a. of at least 3.00. 

165:114 Spanish Studies
Choice of several institutions: University of Spain; Spanish language and culture for foreigners; regular course work in liberal arts, sciences, engineering, and business; all taught in Spanish, semester or academic year; Spanish exchange: choice of six universities in Republic of Korea offering Korean language and culture classes at Kanda University of International Studies, Tokyo; Korean and/or Asian studies courses, taught in English; regular university course work in full range of disciplines, taught in Korean; semester or academic year; course offerings vary by university. Jainsil Atilla University, Seogje, Hungary: Hungarian language, Hungarian and East-Central European studies, taught in English; regular university course work in liberal arts and sciences taught in Hungarian, semester or academic year; Denmark: Aalborg Exchange—Aalborg University: regular university course work in communication studies, European studies emphasizing economics and politics, taught in English; semester or year-long. Eiole Superieure de Commerce d’Amiens: graduate and advanced undergraduate course work in business or academic year, proficiency in French and adequate academic background required. Budapest University of Economic Science and Public Administration (BUESPA) Exchange, Budapest, Hungary: economics, economics, and political science courses taught in English, Hungarian language courses. Tilburg University, The Netherlands: accounting, applied microeconomics, finance, management, international marketing, electronic commerce, and other subjects; taught in English, semester or academic year. Chosunyers in Journalism exchange, taught in Spanish, at partner institutions in Mexico (University of Colima, National Autonomous University of Guadalajara) and Canada (Mount Royal College, Calgary; Humber College, Toronto), Joensu exchange, graduate study and research in education at Joensu University of Education, Japan.

165:117 Frankfurt Exchange Program
Regular degree course work in business and economics at Johann Wolfgang Goethe University; courses taught in German. Academic year. Arranged through Tippie College of Business. Prerequisites: two years of college German or equivalent, and relevant academic background.

165:119 Vienna Exchange Program
Regular degree course work in business administration and economics at Wirtschaftsuniversitat in Vienna, Austria; taught in English and German. Arranged through Tippie College of Business. Recommended: one year of college German, or equivalent.

165:500 Study Abroad
0.0 h.

Students participating in study abroad programs at other U.S. or foreign universities maintain their status at the University of Iowa by registering for this course.

165:501 Study Abroad

165:805 Iowa Regents Semester in Wales
University of Swansea, Wales; three-week interdisciplinary course on British life and culture, followed by regular degree course work in the humanities, social sciences, physical sciences, business, engineering. Fall and spring semesters. Prerequisite: g.p.a. of at least 2.80.

165:810 CIEE Spain Program
Several programs in Seville, Alicante, Barcelona, and Alcala addressing specific language proficiency levels and academic interests. Prerequisites vary.

165:811 USAC Studies in Spain
Intensive Spanish language at beginning level; advanced level, civilization, literature at third-year level; intensive Barque language; some courses taught in English; program sites include Bilbao, San Sebastian, Madrid, Alcalá. Prerequisite: g.p.a. of at least 2.50.

165:812 CIEE France Program
Two programs. Contemporary French studies program: language skills for students taking courses on French culture and contemporary civilization; one semester of French required. Critical studies program: critical approach to contemporary French thought in literature, film, philosophy, art, aesthetics, proficiency in French required. Prerequisite: g.p.a. of at least 3.00.
165:813 CIEE China Program  
attr.  
Three programs in People's Republic of China, one program in Taiwan, Mandarin Chinese, Chinese civilization, and area studies. Summer, semester, or academic year. Prerequisites and session vary.

165:816 CIC Latin American Health and Nutrition Program  
attr.  
Latin American/Caribbean health and nutrition; interdisciplinary and field-based study with coursework in Spanish language, medicine, social sciences, humanities; independent study. Summer and/or fall. Prerequisites: one year of Spanish (summer), or two years of Spanish (summer and fall), or three years of Spanish (fall); and g.p.a. of at least 2.50.

165:817 CIC Program in Mexico  
attr.  
University of Guanajuato; Spanish language, Latin American literature, art, history, anthropology, film, political science; homestays with Mexican families. Summer. Prerequisites: five semesters of Spanish and g.p.a. of at least 3.00.

165:818 CIC Program in Quebec  
attr.  
Laval University; French language, Quebec literature and culture; home-stays with Francophone families or dormitory accommodations. Summer. Prerequisites: one year of college-level French and g.p.a. of at least 3.00.

165:820 Semester at The Queen’s University of Belfast  
attr.  
Courses at The Queen’s University of Belfast, Northern Ireland; nearly 150 subjects, including social sciences and humanities from Irish and Northern Irish perspectives. Prerequisite: g.p.a. of at least 3.00.

165:823 Semester in Venezuela, Universidad de los Andes  
attr.  

165:826 Summer Art Program in Italy  
attr.  
Premiere program for students in collaboration with the Escuela Nacional de Grafica, cultural and artistic introduction to Venice and surrounding area; for students at all levels of artistic accomplishment. Summer. Prerequisite: three years of college-level Russian or equivalent.

165:827 Asia Study Tour  
attr.  
Introduction to history, culture, society, economies, and politics of one or more Asian countries.

165:828 ACTR Program Russia  
attr.  
Russian language programs at institutions in Moscow, Leningrad. One semester of academic year or summer. Prerequisite: three years of college-level Russian or equivalent.

165:829 London Performance Study  
attr.  
Selected theater productions, lectures, performances, discussions, written exercises, workshops, cultural activities. Credit may be applied toward a University of Iowa major in English or theatre arts. Summer.

165:831 Elementary Student Teaching Abroad  
attr.  
Supervised student teaching in an overseas school.

165:832 Secondary Student Teaching Abroad  
attr.  
Supervised student teaching in an overseas school.

165:833 Academic Year in Freiburg  
attr.  
Combination of special program classes, German for foreigners, and regular degree course work in most liberal arts subjects at Albert-Ludwigs University, Freiburg, Germany. Academic year. Prerequisite: at least four semesters college German or equivalent with g.p.a. of at least 3.00.

165:834 Environmental Studies in Slovenia  
attr.  
Short-term course at the School of Environmental Sciences, Nova Gorica, Slovenia; topics vary, taught in English. Off-season session.

165:836 Semester in South India  
attr.  
Indian civilization and culture; science, technology, and sustainable development; women’s studies; Kannada, Hindi or Sanskrit; internship as independent research project. Based in Mysore. Fall semester.

165:837 Iowa Regents Semester in Australia arr.  
Fall semester.

165:838 Irish Writing Program arr.  
Strong communication skills, cultural awareness developed through intensive language study, cultural immersion; location varies. Prerequisite: one semester college-level Japanese or equivalent.

165:839 Summer Language Program in Australia arr.  
Introduction to South African culture from varied academic perspectives, summer session. Enrollment in regular University of Natal courses; fall and spring semesters.

165:840 Archaeological Field Work Abroad  
attr.  
Major salvage/archeology projects in the Netherlands excavating sites from 1000 B.C. to 1950 C.E.

165:841 International Perspectives: Engineering  
attr.  
Exploration of historical, cultural, social, economic, ethical, environmental, and/or political conditions that affect engineering projects in a specific country or world region; location and topics vary.

165:842 Cross-Cultural Nursing Experience  
attr.  
Practical experience to build understanding of nursing roles and responsibilities in different cultures and health care systems; for advanced nursing students.

165:847 Japan Summer Language Institute  
attr.  
Strong communication skills, cultural awareness developed through intensive language study, cultural immersion; location varies. Prerequisite: one semester college-level Japanese or equivalent.

165:848 University of Natal Exchange  
attr.  
Introduction to South African culture from varied academic perspectives, summer session. Enrollment in regular University of Natal courses; fall and spring semesters.

165:849 Social Work International Travel/Study Seminar  
attr.  
Impact of social/political economy on family and community systems in the country visited; seminars, guest speakers, field visits. Prerequisites: 042:143 or consent of instructor.

165:850 USAC Studies in Costa Rica  
attr.  
Intensive beginning level Spanish language; advanced language, literature, civilization at third-year level; tropical ecology. Two program sites—Heredia and Puntaarenas. Some courses taught in English. Prerequisite: g.p.a. of at least 2.50.

165:851 USAC Studies in Chile  
attr.  
Intensive beginning level Spanish language; advanced language, literature, civilization at third-year level; area studies. Some courses taught in English. Prerequisite: g.p.a. of at least 2.50.

165:852 Study in Cuba  
attr.  
Cuba history and culture at the Centro de Estudios Martiniano, Havana, three-and-a-half weeks in summer. Prerequisites: three years of Spanish, good academic standing, and enrollment in a degree program.

165:853 Creativity Workshop  
attr.  
3 s.h. Exercises in creative writing, memoir, drawing, collage, and storytelling to help participants learn how to capture moments of inspiration and develop them, combat writer’s block, and trust their individual voices.

165:854 International Business and Engineering in London  
attr.  
Study of the international business environment in one of the world’s financial capitals. Course can be counted toward undergraduate business major or international business certificate. Winter and summer. Prerequisites: junior and good academic standing.

165:855 Vocal Studies in Italy  
attr.  

165:856 Regents Hispanic Institute  
attr.  
Study of Spanish language and culture in Valladolid, Spain. Six weeks in summer. Prerequisite: four semesters of college-level Spanish or equivalent.

165:857 Iowa Regents Summer Program in Venezuela  
attr.  
Latin American literature and culture in collaboration with the Universidad de los Andes, Merida. Six weeks. Prerequisites: 035:012 or equivalent, and g.p.a. of at least 2.50.

165:858 Summer Geography Program: Oaxaca, Mexico  
attr.  
Classroom-based instruction with field-based research opportunities; enrollment in Field Research Seminar and two other courses chosen from Culture, People and the Environment, Regional and Economic Development, and Spanish Communication Skills. Summer.

165:859 Public Health and Environment: The Gambia  
attr.  
Gambia School of Public Health; broad range of health- and environmental-related topics studied through field studies and internships; for undergraduates and graduate students in appropriate academic disciplines. Six weeks. Prerequisites: junior standing or higher; and g.p.a. of at least 2.50.

165:860 Crossing Borders Field Course  
attr.  
Hybrid aspects of cultural, economic, and social life in present-day island settings of the post-Colonial English-speaking Caribbean. Winter break. Prerequisite: 16W:051 or appropriate background and interest.

165:861 Iowa Summer Program in Brazil  
attr.  
Relationship between values, ideologies, and symbolic content in development of areas in which practices of African origin have diversified and enriched Brazilian culture. Summer.

165:862 Contemporary Mexican Theater and Performance in Context  
attr.  
Winter session program in Chetumal, Chiapas, Mexico, led by a University of Iowa professor of anthropology. Lectures, observation, clinical practices in seminars and in hospital settings. Prerequisite: speech and hearing science major.

165:864 MBA Study Abroad  
attr.  

165:865 Iowa Regents Summer Program in France  
attr.  
Study of French language and culture in Lyon, France. Seven weeks in summer. Prerequisites: four semesters of college-level French and g.p.a. of at least 2.75.

165:866 Iowa Regents Semester in Ireland  
attr.  
Regular course work in all disciplines at University College Cork in Ireland. Fall and spring semesters. Prerequisites: sophomore standing and g.p.a. of at least 3.00.

165:871 Study Abroad in Monterrey  
attr.  
Supervised foreign students at Paul Valery University; regular courses with French students at University of Montpellier; taught in French. Semester or academic year. Prerequisite: four semesters of French.

165:872 USAC Studies in Italy  
attr.  
Intensive beginning level Italian, intermediate and advanced language, international business, art, architecture and Italian studies options in Turin, Italy.

165:874 Study Abroad in Montevideo  
attr.  
Special courses for foreign students at País Valdés University; regular courses with French students at University of Montpellier; taught in French. Semester or academic year. Prerequisite: four semesters of French.

165:876 Iowa Regents Study Abroad in Australia  
attr.  
Supervised student teaching in an overseas school.

165:877 Study Abroad in Montpellier  
attr.  
Supervised foreign students at Paul Valéry University; regular courses with French students at University of Montpellier; taught in French. Semester or academic year. Prerequisite: four semesters of French.

165:878 Study in Mexico  
attr.  
Supervised foreign students at Paul Valéry University; regular courses with French students at University of Montpellier; taught in French. Semester or academic year. Prerequisite: four semesters of French.

165:879 Study Abroad in Portugal  
attr.  

165:880 Study Abroad in Russia  
attr.  
Supervised foreign students at Paul Valéry University; regular courses with French students at University of Montpellier; taught in French. Semester or academic year. Prerequisite: four semesters of French.

165:881 Study Abroad in Spain  
attr.  
Supervised foreign students at Paul Valéry University; regular courses with French students at University of Montpellier; taught in French. Semester or academic year. Prerequisite: four semesters of French.

165:883 International Student Exchange Program  
attr.  
International Student Exchange Program; fields and duration vary. Group fee options.
University of Iowa, Iowa State University, the University of Northern Iowa, and Drake University. Iowa Lakeside Laboratory courses can be used to satisfy major or minor requirements of their major or minor, or college or university general education requirements.

The laboratory was established in 1909 for the conservation and study of the rich flora and fauna of northwest Iowa, especially the numerous lakes, wetlands, and prairies of the Iowa Great Lakes region. The campus is located on approximately 140 acres of restored prairie, wetland, and gallery forest along the west shore of West Okoboji Lake. Lakeside’s mission is to provide undergraduate and graduate students an opportunity for hands-on experience in a variety of natural and human environments through its field-oriented summer courses, and to provide research facilities and support for graduate students and faculty members working on research projects in northwestern Iowa.

Each summer Iowa Lakeside Laboratory offers students a unique educational experience—small, full-immersion, field oriented courses in the natural sciences (archaeology, ecology, environmental science, evolution, geology, taxonomy). All courses meet all day Monday through Friday. The majority of courses run four weeks. Enrollment in most courses is limited to eight to ten students. Courses are run four weeks. Enrollment in most courses is limited, students should register before May 1 for the following summer session. Housing is limited at Lakeside. When students register for courses, they must either apply for housing or state that they plan to live off campus.

Financial Support

Iowa Lakeside Laboratory scholarships are available to undergraduates and graduate students. All scholarships cover room and board. Information about how to apply for Iowa Lakeside Laboratory scholarships is included in the Iowa Lakeside Laboratory Bulletin. Students also should consult the Office of Student Financial Aid for information about other scholarships, work-study, and loan programs.

The University of Iowa provides Thomas H. Macbride Scholarships in Natural Science for undergraduates and graduate students. All scholarships cover room and board. Information about how to apply for Iowa Lakeside Laboratory scholarships is included in the Iowa Lakeside Laboratory Bulletin. Students also should consult the Office of Student Financial Aid for information about other scholarships, work-study, and loan programs.

Weather permitting, students normally spend at least part of each day doing fieldwork, either as part of their class work or for individual or group projects. Because some courses are offered alternate summers, the current Iowa Lakeside Laboratory Bulletin or the University of Iowa’s summer course offerings on Iowa Student Information Services (ISIS) should be consulted for the courses being offered in a particular summer session. The Iowa Lakeside Laboratory Bulletin also contains additional information about the Iowa Lakeside Laboratory and about each course being offered.

Research projects by undergraduates, graduate students, and faculty members can be completed either on the campus or at many nearby natural areas. Undergraduate and graduate students are strongly encouraged to do independent projects at Iowa Lakeside Laboratory, and graduate students are welcome to use Lakeside as a base for their thesis and dissertation research. Laboratory space and other facilities are available for long-term or short-term research projects.

Teaching and research facilities include eight laboratory buildings, a library, and a lecture hall. Living accommodations include cottages, motel-style units, and a large mess hall. All students are encouraged to stay at Lakeside while they are taking courses to derive full advantage of its educational, professional, and social life.

Registration

Students can enroll in Iowa Lakeside Laboratory courses only after submitting an Iowa Lakeside Laboratory Registration and Scholarship Form and the Lakeside housing form to the Iowa Lakeside Laboratory Administrative Office. These forms are included in the Iowa Lakeside Laboratory Bulletin, which also contains current information on course offerings, and in the University of Iowa’s online course schedule. The Iowa Lakeside Laboratory Bulletin is available on the UI campus from the Departments of Biological Sciences, Chemistry, and Geoscience. The entire Iowa Lakeside Laboratory Bulletin is also on Lakeside’s web site.

Early registration is advisable. Because enrollment in Iowa Lakeside Laboratory courses is limited, students should register before May 1 for the following summer session. Housing is limited at Lakeside. When students register for courses, they must either apply for housing or state that they plan to live off campus.

Courses

00L:005 Flora of the Iowa Lakes Region 2 s.h.

00L:015 Introduction to the Life Sciences 1 s.h.

00L:031 Ecology 4 s.h.

00L:035 Physical Geology 4 s.h.

00L:040 Archaeology 4 s.h.

00L:043 Illustrating Nature—Sketching 2 s.h.

00L:044 Illustrating Nature—Photography 2 s.h.

00L:050 Undergraduate Internship 1-5 s.h.

00L:064 Biology of Aquatic Plants 4 s.h.

00L:100 Techniques for Biology Teaching 1-2 s.h.

00L:101 Iowa Natural History 4 s.h.

00L:102 Plant-Animal Interactions 4 s.h.

00L:103 Aquatic Ecology 4 s.h.

00L:105 Plant Taxonomy 4 s.h.

00L:109 Freshwater Algae 4 s.h.

00L:113 Undergraduate Independent Study 1-4 s.h.

00L:115 Field Mycology 4 s.h.

00L:117 Ecology and Systematics of Diatoms 4 s.h.

00L:120 Freshwater Invertebrates 4 s.h.

00L:121 Plant Ecology 4 s.h.

00L:122 Prairie Ecology 4 s.h.

00L:124 Wetland Ecology 4 s.h.

00L:125 Environmental Science Laboratory 1-2 s.h.

Placement with county conservation boards, camps, parks, and other agencies for experience as interpreters, rangers, technicians. Prerequisites: sophomore standing and consent of instructor.

Field-oriented introduction to the taxonomy and ecology of aquatic plants in lakes, wetlands, rivers; individual or group projects. Offered summer sessions of odd years.

Development and implementation of laboratory exercises suitable for inclusion in elementary, middle, high school, and community college biology and environmental courses; exercises built around common organisms and ecosystems in Iowa; animal biology, plant biology; fungi and lichens, aquatic ecology; prairie ecology, wetland ecology; limnology; animal behavior, insect ecology, biology of invertebrates, non-native use of living organisms, Project WET; field trips

Biological diversity and its causes examined through lectures and field trips to native lake, marsh, forest, and prairie habitats; measuring the environment, sampling and identifying organisms, experimenting with the ecosystem, understanding species interactions, appreciating influences of past and present climates and geological events on natural ecosystems of the region. Offered summer sessions of odd years. Prerequisite: one biological sciences course.

Introduction to ecology and co-evolution of plants and animals; emphasis on dispersal, pollination, plant-herbivore interactions; field and laboratory work, reading, discussion. Offered summer sessions of even years. Prerequisite: one biological sciences course.

Analysis of aquatic ecosystems; emphasis on basic ecological principles; ecological theories tested in the field; identification of common plants and animals. Prerequisites: ecology, chemistry, and physics courses.

Principles of classification and evolution of vascular plants; taxonomic tools and collection techniques; use of keys; field and laboratory studies emphasizing identification of local flowering plants, recognition of major plant families.

Structure and taxonomy of freshwater algae based on field material collected; emphasis on genus-level identifications; habitat visits to lakes, fens, streams, rivers; algal ecology.

Prerequisites: junior or senior standing and consent of instructor.

Identification and classification of the common fungi; techniques for identification, preservation, and culture practiced with members of the various fungi groups. Offered summer sessions of even years.

Field and laboratory study of freshwater diatoms; techniques in collection, preparation, and identification of diatom samples; study of environmental factors affecting growth, distribution, taxonomic characters; project design and execution, including construction of reference and voucher collections; data organization and analysis.

Mechanisms and patterns in microevolution, macroevolution; field exercises emphasizing studies of natural selection, adaptation, genetic variation, and population genetics of local plant, animal populations.

Field-oriented introduction to identification, life history, and ecology of common, free-living freshwater invertebrates of north-temperate lakes, rivers, wetlands; emphasis on invertebrates’ role in aquatic food chains and litter processing. Prerequisite: an ecology course.

Principles of plant population, community, and ecosystem ecology illustrated through studies of native vegetation in local prairies, wetlands, forests; group or individual projects.

Basic patterns, underlying physical and biotic causes of regional distributions, interactions, and roles of plants and animals in native ecosystems. Prerequisites: junior or senior standing and consent of instructor.

Exercises built around basic principles of biological sciences and ecology.

Ecology, classification, creation, restoration, and management of wetlands; field studies on composition, structure, and function of...
Descriptive and predictive geographic information system (GIS) modeling techniques; map algebra, application of GIS modeling techniques to environmental planning and resource management.

**00L:156 Amphibians and Reptiles**
4 s.h.
Ecology, behavior, and conservation biology of amphibians and reptiles, with focus on behavior, morphology, physiology, habitat use, and reproductive strategies. Offered summer sessions of odd years. Prerequisites: two biological sciences courses.

**00L:165 Behavioral Ecology**
4 s.h.
Ecological and evolutionary theories of animal behavior examined through field studies of animal coloniality, courtship, territoriality, predator defense, habitat selection, foraging, mating systems, parental care. Offered summer sessions of even years. Prerequisites: 00L:031.

**00L:166 Vegetation Restoration and Management**
4 s.h.
Theoretical and practical considerations for development and implementation of vegetation management plans; hands-on experience with varied techniques for restoring and managing natural vegetation, including mowing, burning, grazing, thinning, mechanical and chemical weed control, planting techniques. Offered summer sessions of odd years. Prerequisite: an ecology course.

**00L:170 Soil Genesis and Landscape Relationships**
4 s.h.
Relationships between soil formation, geomorphology, environment, soil interpretation, classification, mapping, interpretation for land use. Offered summer sessions of even years.

**00L:175 Ecological and Systematics of Diatoms**
4 s.h.
An aspect of the upper Midwest's natural history, or techniques for studying natural history. Prerequisite: consent of instructor.

**00L:180 Fish Ecology**
4 s.h.
Basic principles of fish interaction with abiotic and biotic environments, field methods, taxonomy, and biology of fish with emphasis on the fish fauna of northwestern Iowa. Offered summer sessions of even years.

**00L:186 Statistical Methods for Field Biologists**
4 s.h.
Introduction to statistical analysis, interpretation of field data, fundamentals of experimental design, hypothesis testing with continuous and discrete data, simple and multilinear regression and correlation, introduction of analysis of variance, data presentation. Offered summer sessions of odd years.

**00L:190 Undergraduate Research**
1-4 s.h.
Prerequisites: junior or senior standing and consent of instructor.

**00L:201 Advanced Field Ornithology**
4 s.h.
Field and laboratory study of representative vertebrates of northwestern Iowa; observations and experimentation emphasize ecological history by integrating concepts of functional morphology, behavioral ecology, evolutionary biology.

**00L:202 Native Plant Ecology**
4 s.h.
Field and laboratory study of representative native plants of northwestern Iowa; observations and experimentation emphasize ecological history by integrating concepts of functional morphology, behavioral ecology, evolutionary biology.

**00L:213 Graduate Independent Study**
1-4 s.h.
An aspect of the upper Midwest's natural history, or techniques for studying natural history. Prerequisite: consent of instructor.

**00L:214 Statistical Methods for Field Biologists**
4 s.h.
Basic principles of fish interaction with abiotic and biotic environments, field methods, taxonomy, and biology of fish with emphasis on the fish fauna of northwestern Iowa. Offered summer sessions of even years.

**00L:215 Field Ornithology**
4 s.h.
Field and laboratory study of representative vertebrates of northwestern Iowa; observations and experimentation emphasize ecological history by integrating concepts of functional morphology, behavioral ecology, evolutionary biology.

**00L:216 Ornithology**
4 s.h.
Principles of fish interaction with abiotic and biotic environments, field methods, taxonomy, and biology of fish with emphasis on the fish fauna of northwestern Iowa. Offered summer sessions of even years.

**00L:231 Graduate Independent Study**
1-4 s.h.
Prerequisites: graduate standing and consent of instructor.

**00L:232 Graduate Independent Study**
1-4 s.h.
Prerequisites: graduate standing and consent of instructor.

**00L:260 Environmental Science and Policy**
4 s.h.
Approaches to watershed analysis, modeling, management; techniques for watershed analysis, modeling, management; analytical tools for modeling watershed hydrology, water quality, case studies in modeling and managing rural and urban watersheds. Offered summer sessions of odd years.

**00L:262 Fish Ecology**
4 s.h.
Basic principles of fish interaction with abiotic and biotic environments, field methods, taxonomy, and biology of fish with emphasis on the fish fauna of northwestern Iowa. Offered summer sessions of even years.

**00L:263 Conservation Biology**
4 s.h.
Population and community level examination of factors influencing viability of plant and animal populations from demographic and genetic perspectives; assessment of biodiversity; design, management of preserves. Offered summer sessions of even years. Prerequisites: 00L:031.

**00L:266 Field Ornithology**
4 s.h.
Field and laboratory study of representative vertebrates of northwestern Iowa; observations and experimentation emphasize ecological history by integrating concepts of functional morphology, behavioral ecology, evolutionary biology.

**00L:280 Introductory Mathematical Modeling**
4 s.h.
Geospatial information system (GIS) techniques for watershed hydrology and water quality modeling, water resource management; approaches to watershed analysis, modeling, management; analytical tools for modeling watershed hydrology, water quality, case studies in modeling and managing rural and urban watersheds. Offered summer sessions of odd years.

**00L:290 Research**
1-4 s.h.
IBA students select a faculty mentor. As students advance, they spend substantial time developing independent projects under the supervision of their mentor.

Beginning with their first fall semester, students take courses to satisfy requirements for their undergraduate degrees. They also attend courses, seminars, and workshops offered exclusively to IBA students.

All IBA students enroll in 168:041 IBA Student Development Seminar throughout their undergraduate careers. They earn 1 s.h. of credit for the course each semester during their first and second years, and they register for 168:041 for zero credit in their third and fourth years. Students also enroll in 168:047 IBA Research in Biomedical Science and earn 1 s.h. of credit for working five hours per week in their mentor's laboratory. Both courses are graded satisfactory/fail.

First-year students also enroll in a course that introduces them to research methods and manuscript styles in the natural sciences. The course, 010:005 Rhetoric of Scientific Inquiry, also enhances communication skills required for study in the sciences and satisfies the University's undergraduate rhetoric requirement. IBA students who enter the University with an ACT English subscore of 24 or higher take 010:005 during their first fall semester. Those who enter with an ACT English subscore of 23 or lower take 010:001 Rhetoric I during the fall semester of their first year, followed by 010:002 Rhetoric II during the spring semester.

First-year students also enroll in a specialized section of 407:001 The College Transition during the fall semester. Class sessions focus on topics such as defining college culture, discovering University resources, refining study skills, taking tests, indentifying personal values, exploring self-motivation, and setting goals. Students earn 2 s.h. for the course, which is graded satisfactory/fail.

**STUDENTS ACCEPTED FROM COLLEGE**
Applications also are accepted from current University of Iowa undergraduates majoring in the sciences. Students accepted to IBA during their first, second, or third year of college join the appropriate class of IBA scholars. During their first semester of participation, new undergraduates complete several lab rotations and select a research mentor with whom they work full-time during the eight-week summer session, and part-time during the academic year. They also join the IBA Student Development Seminar (168:041) for their peer class.
Admission
Students apply to the Iowa Biosciences Advantage during their senior year of high school or once they are undergraduate students. To qualify for admission, students must:
- be members of an underrepresented minority group (African American, Hispanic or Latino/Latina, Native American);
- possess a strong interest in scientific research; and
- have a high school g.p.a. of at least 3.50 (at least 3.00 for current undergraduates) or be in the top 15 percent of their graduating class.
Applicants must submit transcripts showing that they have completed high school math, biology, and chemistry. They also must submit one letter of recommendation from a high school teacher or college professor. The admission process includes an interview.
Application deadline is early May for summer entry. Current undergraduates may apply throughout the academic year.

Faculty
Faculty members from the University’s broad range of basic and biomedical science disciplines serve as teachers and mentors to IBA students. They represent many departments, including anatomy and cell biology, biochemistry, biological sciences, biomedical engineering, chemistry, exercise science, microbiology, neuroscience, pharmacy, physiology and biophysics, and psychology.

Courses
168:039 Introduction to Laboratory Techniques 2 s.h. Experiments that teach basic laboratory techniques through experimentation with biological materials; preparation for conducting research in the mentor’s laboratory.
168:040 IBA Introduction to Research Methods 2 s.h. Verbal skills, analytical and quantitative reasoning, and research capabilities for college-bound students; perceiving and comprehending problems, posing questions, generating hypotheses, designing research, gathering and organizing evidence in the field and in the laboratory, using large existing datasets, analyzing and interpreting data using mathematical, statistical, and geographic information system (GIS) methods, writing and presenting research reports; varied readings, writing exercises, hands-on computer-based and web-based laboratory assignments; in-depth research paper.
168:041 IBA Student Development Seminar 0-1 s.h. Academic and professional development; presentations by faculty researchers, admissions representatives, or students in graduate bioscience programs; discussions about succeeding at the University, talks by professional educators on top topics such as effective study skills.
168:042 IBA Writing for Biological Researchers 3 s.h. Same as 010:042.
168:043 IBA Quantitative Methods for Biological Researchers 3 s.h.
168:047 IBA Research in Biomedical Science 1-2 s.h. Experience working five hours per week in a mentor’s laboratory on assigned research projects; may include work with other members of the laboratory to complete assigned projects. Prerequisite: enrollment in IBA.
168:048 IBA Research in Biomedical Science 1-2 s.h. Experience working five hours per week in a mentor’s laboratory on assigned research projects; may include work with other members of the laboratory to complete assigned projects. Prerequisite: enrollment in IBA.
168:049 IBA Research in Biomedical Science 1-2 s.h. Experience working five hours per week in a mentor’s laboratory on assigned research projects; may include work with other members of the laboratory to complete assigned projects. Prerequisite: enrollment in IBA.
168:050 Introduction to Biomedical Science 1-2 s.h. Concepts of basic and biomedical sciences, the role of the scientist in society, and the importance of scientific research.
168:051 Introduction to Biomedical Research 1-2 s.h. Introduction to research in the mentor’s laboratory.
168:052 Principles of Biomedical Research 1-2 s.h. Introduction to research in the mentor’s laboratory.
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168:066 Introduction to Biomedical Research 1-2 s.h. Introduction to research in the mentor’s laboratory.

INTERCOLLEGIATE ATHLETIC PARTICIPATION
Athletes who are members of University of Iowa intercollegiate athletics teams register for 408:021. The course offers separate sections for each intercollegiate sport (e.g., football, men’s basketball, women’s basketball, women’s soccer). Students who register for 408:021 must have written approval from the student intercollegiate athletics office and may receive up to 2 s.h. of credit for the course. Members of University of Iowa sport clubs are not eligible to enroll in 408:021.
408:021 Intercollegiate Athletic Participation 1 s.h.

LIFETIME LEISURE SKILLS
Director: Wayne Fett Web site: http://recserv.uiowa.edu/touchtheearth/classes/classes.htm
410:042 Introduction to Rock Climbing 1 s.h. Basics of rock climbing. Taught at Pictured Rocks County Park. Two days.
410:043 Bicycle Touring 1 s.h. Basics of bicycle touring. Taught on Johnson County area roads.
410:044 Mountain Bicycling 1 s.h. Basics of mountain bicycling. Taught on Sugar Bottom recreation trail system.
410:046 Tae Kwon Do 1 s.h. Basics of Tae Kwon Do. Eight weeks.
410:048 Canoeing 1 s.h. Basics of canoeing. Taught at Macbride Nature Recreation Area. Two days.
410:049 White-Water Kayaking 1 s.h. Basics of white-water kayaking. Taught in Field House pool, rivers in Wisconsin, Missouri.
410:050 White-Water Canoeing 1 s.h. Basics of white-water canoeing. Taught on rivers in Wisconsin, Missouri.
410:052 Intermediate Cross-Country Skiing 1 s.h. Basics of cross-country skiing. Taught on town and international; profit and nonprofit; state and federal government. Employers conduct on-campus job interviews at specific times during the year and many post immediate openings year-round. On-campus recruiting and job postings are available via the World Wide Web. The center also helps students find internships in Iowa, the Midwest, nationwide, and sometimes in other countries. For a list of discipline-related internships (all require course registration), see “Courses” in this section of the Catalog.
For more information about the center’s services and facilities, contact the Career Center.
Career Exploration

409:100 Career Center Seminar 0 s.h.
Career related issues; how to use the Career Center in choosing majors, finding internships, developing successful job search strategies.

409:101 Consider Iowa Road Trip 1 s.h.
Visits to Iowa organizations; employment opportunities in Iowa; research on companies; preparation for site visits; review and organization of observations. Taught during spring break.

Internships

409:001 Internship in Art 0 s.h.
409:002 Internship in Biological Science 0 s.h.
409:003 Internship in Speech Pathology and Audiology 0 s.h.
409:004 Internship in Chemistry 0 s.h.
409:006 Internship in Business 0 s.h.
409:007 Internship in Cooperative Education 0 s.h.
409:008 Internship in English 0 s.h.
409:009 Internship in French 0 s.h.
409:012 Internship in Geology 0 s.h.
409:013 Internship in German 0 s.h.
409:015 Internship 0 s.h.
409:016 Internship in History 0 s.h.
409:019 Internship in Journalism 0 s.h.
409:020 Internship in Latin 0 s.h.
409:021 Internship in Library Science 0 s.h.
409:022 Internship in Computer Science 0 s.h.
409:024 Internship in Museum Studies 0 s.h.
409:025 Internship in Music 0 s.h.
409:027 Internship in Exercise Science 0 s.h.
409:028 Internship in Health and Sport Studies 0 s.h.
409:029 Internship in Physics and Astronomy 0 s.h.
409:030 Internship in Political Science 0 s.h.
409:031 Internship in Psychology 0 s.h.
409:032 Internship in Religious Studies 0 s.h.
409:033 Internship in Literature, Science, and the Arts 0 s.h.
409:034 Internship in Sociology 0 s.h.
409:035 Internship in Spanish 0 s.h.
409:036 Internship in Communication Studies 0 s.h.
409:039 Internship in Asian Languages and Literature 0 s.h.
409:041 Internship in Russian 0 s.h.
409:042 Internship in Social Work 0 s.h.
409:044 Internship in Geography 0 s.h.
409:045 Internship in American Studies 0 s.h.
409:048 Internship in Cinema and Comparative Literature 0 s.h.
409:049 Internship in Theatre Arts 0 s.h.
409:061 Internship in Microbiology 0 s.h.
409:091 Internship in Law 0 s.h.
409:099 Internship in Biochemistry 0 s.h.
409:103 Internship in Linguistics 0 s.h.
409:113 Internship in Anthropology 0 s.h.
409:122 Internship in Mathematics 0 s.h.
409:129 Internship in African American World Studies 0 s.h.
409:131 Internship in Women's Studies 0 s.h.
409:136 Internship in Quality Management and Productivity 0 s.h.
409:137 Internship in Dance 0 s.h.
409:142 Internship in Molecular Biology 0 s.h.
409:143 Internship in Honors 0 s.h.
409:149 Internship in Environmental Sciences 0 s.h.
409:170 Internship in Public Health 0 s.h.
409:171 Internship in Biostatistics 0 s.h.
409:172 Internship in Community and Behavioral Health 0 s.h.
409:173 Internship in Epidemiology 0 s.h.
409:175 Internship in Occupational and Environmental Health 0 s.h.
409:176 Internship in Leisure Studies 0 s.h.
409:187 Internship in International Studies 0 s.h.
409:192 Internship in Statistics and Actuarial Science 0 s.h.
409:193 Internship in Accounting 0 s.h.
409:194 Internship in Finance 0 s.h.
409:195 Internship in Marketing 0 s.h.
409:196 Internship in Economics 0 s.h.
409:197 Internship in Management and Organizations 0 s.h.
409:198 Internship in Management Information Systems 0 s.h.
409:199 Internship in Liberal Studies 0 s.h.
409:822 Washington Center Internship Program arr. Internship placements for students in all University of Iowa majors (typical placements include Congress, the White House, the Center for Strategic and International Studies, the U.S. Department of Commerce, the U.S. Department of Defense, the Environmental Protection Agency, CNN, CSPAN, BET, MCI Center, the Smithsonian Institution, the National Institutes of Health, Amnity International, the Children’s Defense Fund, Mexican Cultural Institute Embassies, the U.S. Marshall’s Office, federal courts, law offices, and the U.S. Secret Service; participation in Presidential Lecture Series and Congressional Breakfast Series. Full semester or summer session.

Orientation Training

Director: Andrew Cincman
Web site: http://www.uiowa.edu/admissions/first_year/orientation.html

The University of Iowa holds orientation sessions, presented by orientation staff, for all incoming undergraduates. Parents and guardians are invited to attend separate but concurrent programs.

Orientation offers the following courses for all entering students who are placed on academic probation. The course’s goal is to help students prepare themselves to achieve academic success.

Online at Iowa (407:007) introduces students to the broad range of electronic resources available to them at the University. The course consists of assignments on a web site, which students complete independently at their own pace. Teaching assistants answer students’ questions and help keep track of their progress. There are no exams; the course is graded satisfactory/fail.

The Undergraduate Initiatives program is administered by the appropriate provost for undergraduate education. For more information about Undergraduate Initiatives courses, contact the Academic Advising Center. Other opportunities designed especially for first-year students at Iowa include the Courses in Common program (contact the Academic Advising Center), first-year seminars (contact the College of Liberal Arts and Sciences), and the Living and Learning Communities (contact the Office of the Provost).

407:001 The College Transition 2 s.h.
College culture, University of Iowa resources, refinement of study skills, test taking, identification of personal values, self-motivation, goal setting; taught in small sections with emphasis on classroom discussion. Prerequisite: entering first-year student standing.

407:002 College Success Seminar 1 s.h.
Skills, habits, and attitudes essential for college success; self-assessments, problem solving, motivation, time management, study skills, preparing for and taking tests, campus resources, including Career Center, University Counseling Service; emphasis on class participation and completion of assignments related to course topics. Prerequisite: selected students with first-year standing in the College of Liberal Arts and Sciences.

407:007 Online at Iowa 1 s.h.
Electronic introduction to the University of Iowa campus and to electronic information and processes at the University; virtual tour of the campus, with maps and pictures; World Wide Web sites with services for students; introduction to the University of Iowa Libraries; electronic information searching at the libraries and on the Internet; effective use of e-mail programs; how to create a web site.
Summer Undergraduate MSTP Research

Web site: http://www.medicine.uiowa.edu/mstp/sumr

The Medical Scientist Training Program sponsors an intensive eight-week program for undergraduates interested in pursuing combined M.D./Ph.D. training in preparation for careers as physician-scientists. Participants gain experience in research laboratories and exposure to clinical medicine and medically relevant research.

Students conduct research in the laboratory of a biomedical sciences faculty member, shadow physician-scientists in a clinical setting, and attend weekly seminars, career development seminars, and a forum for patient-based discussions focusing on the intersection of science and medicine.

Participants receive a stipend for the program and live on campus in University housing.

Applicants should be U.S. citizens or permanent residents who have completed their sophomore or junior year in a bachelor's degree program in the biological or physical sciences. Applicants should submit an application form (available on the SUMR program web site or from the MSTP office); an official college transcript; and two letters of recommendation. Deadline to apply is early February for the following summer.

Contact the Medical Scientist Training Program, Roy J. and Lucille A. Carver College of Medicine, for more information.

BELIN-BLANK CENTER FOR GIFTED EDUCATION

Director: Nicholas Colangelo
Web site: http://www.uiowa.edu/~belinctr/programs/index.html

The following programs are presented by the Connie Belin and Jacqueline N. Blank International Center for Gifted Education and Talent Development. For more information about the center's programs, contact the Belin-Blank Center or visit the center's web site.

Iowa Talent Project

The Belin-Blank Center and the Des Moines School District collaborate in the Iowa Talent Project (ITP) to identify minority and economically disadvantaged talented and gifted students in the seventh grade who qualify to take upper-level or advanced courses as they progress through secondary school grades. The project's goal is to help students recognize their potential and take advantage of rigorous courses of study that challenge them.

Student participants attend a three-week residential summer program at The University of Iowa, which focuses on improving their critical reading and writing skills. They also enjoy recreational and cultural experiences while they are on campus. Cost of attending the session is covered by the University. Successful Iowa Talent Project students also complete at least eight courses at the Des Moines Central Academy, receiving at least a B in each course, and score 3 or better on at least three advanced placement exams.

Upon finishing high school, successful ITP students are admitted to The University of Iowa and are given financial aid based on need and merit. Once enrolled at the University, students must maintain a designated grade-point average while taking approved courses as full-time students and must meet other specified requirements.

Iowa Governor's Institute

The Iowa Governor's Institute for the Gifted and Talented is a two-week residential summer program that provides exceptionally talented students with an intensive and advanced educational experience designed to enhance their intellectual and social growth. The plan of study complements the regular school curriculum and consists of seven courses that cover advanced science, math problem solving, social sciences, creative writing, multimedia and technology, invention and innovation, and the arts. Institute instructors include outstanding Iowa teachers and University of Iowa faculty and staff.

Cultural and recreational activities are part of the program, and participants have access to the University of Iowa Libraries, computer facilities, and study areas. Housing and meals are provided at University residence halls.

To be eligible for the institute, students must have finished grade 9, 10, or 11 and meet specific Belin-Blank Center requirements. Financial support may be available.

National Scholars Academy

The National Scholars Academy is a one-week residential summer program in which gifted students enhance their potential for high school achievement and get a taste of the college experience. The academy offers two sessions each summer; students may attend one or both.

Academy participants choose one of nine courses and engage in college-level study in their chosen course over the week-long session. All courses involve intensive exploration and application of content and skills not traditionally taught in high school.

The program includes cultural and recreational programs, and participants have access to the University of Iowa Libraries, computer facilities, and study areas. Housing and meals are provided at University of Iowa residence halls.

To be eligible for the academy, students must have finished grade 9, 10, or 11 and meet specific Belin-Blank Center requirements. Financial support may be available.

Undergraduate Microbiology Research

Web site: http://www.medicine.uiowa.edu/microbiology/educational/summer.htm

The Department of Microbiology offers a nine-week research program for qualified undergraduate students who are studying microbiology or other biological sciences and are interested in pursuing careers in science.

Participants conduct research on a project they select, under the direct supervision of a faculty member.

Each participant receives a stipend to pay for housing and food.

Applicants must be U.S. citizens or permanent residents who have completed their sophomore or junior year in a bachelor's degree program in the biological sciences. Applications should include a completed application form and two letters of recommendation. Deadline to apply is mid-February for the following summer.

Contact the Department of Microbiology, Carver College of Medicine, for more information.

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Contact the Department of Microbiology, Carver College of Medicine, for more information.

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Student participants attend a three-week residential summer program at The University of Iowa, which focuses on improving their critical reading and writing skills. They also enjoy recreational and cultural experiences while they are on campus. Cost of attending the session is covered by the University. Successful Iowa Talent Project students also complete at least eight courses at the Des Moines Central Academy, receiving at least a B in each course, and score 3 or better on at least three advanced placement exams.

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Cultural and recreational activities are part of the program, and participants have access to the University of Iowa Libraries, computer facilities, and study areas. Housing and meals are provided at University residence halls.

To be eligible for the institute, students must have finished grade 9, 10, or 11 and meet specific Belin-Blank Center requirements. Financial support may be available.

National Scholars Academy

The National Scholars Academy is a one-week residential summer program in which gifted students enhance their potential for high school achievement and get a taste of the college experience. The academy offers two sessions each summer; students may attend one or both.

Academy participants choose one of nine courses and engage in college-level study in their chosen course over the week-long session. All courses involve intensive exploration and application of content and skills not traditionally taught in high school.

The program includes cultural and recreational programs, and participants have access to the University of Iowa Libraries, computer facilities, and study areas. Housing and meals are provided at University of Iowa residence halls.

To be eligible for the academy, students must have finished grade 9, 10, or 11 and meet specific Belin-Blank Center requirements. Financial support may be available.

Undergraduate Microbiology Research

Web site: http://www.medicine.uiowa.edu/microbiology/educational/summer.htm

The Department of Microbiology offers a nine-week research program for qualified undergraduate students who are studying microbiology or other biological sciences and are interested in pursuing careers in science.

Participants conduct research on a project they select, under the direct supervision of a faculty member.

Each participant receives a stipend to pay for housing and food.

Applicants must be U.S. citizens or permanent residents who have completed their sophomore or junior year in a bachelor's degree program in the biological sciences. Applications should include a completed application form and two letters of recommendation. Deadline to apply is mid-February for the following summer.

Contact the Department of Microbiology, Carver College of Medicine, for more information.
To be eligible for the institute, students must have finished grade 7 or 8. A nomination packet is required, and financial support is available.

166:033 Iowa Governor's Institute 0 s.h.

**Academy for Creative Engineering**

The Academy for Creative Engineering brings gifted high school students to the University of Iowa campus for two weeks of intensive study and teamwork on an engineering project that involves creative problem-solving skills.

Participants work in project teams guided by an engineer, who leads them through an engineering design process that includes defining a problem; establishing objectives and criteria; conducting research; brainstorming; considering alternative strategies or solutions; analyzing, constructing, and testing prototypes; conducting simulations; and evaluating results. Students also attend lectures about the technical and social issues relevant to their project, take project-related field trips, visit varied research laboratories at the University, and participate in career counseling designed for high-ability students.

Cultural and recreational activities fill out the schedule. Participants have access to the University of Iowa Libraries, computer facilities, and study areas. Housing and meals are provided at University of Iowa residence halls.

To be eligible for the institute, students must have finished grade 9, 10, or 11, have an interest in engineering and an aptitude for creative problem solving, and meet specific Belin-Blank Center requirements. Financial support may be available.

The institute is a collaboration of the University of Iowa College of Engineering and the Belin-Blank Center.

166:009 Academy for Creative Engineering 0 s.h.

**Environmental Health Sciences Institute**

The Environmental Health Sciences Institute for Rural Youth is a one-week residential summer program that offers gifted students an intensive and advanced educational experience designed to enhance their intellectual and social growth. The institute’s curriculum was developed by the University of Iowa Libraries, computer facilities, and study areas. Housing and meals are provided at University residence halls.

Students from rural Iowa (towns of 2,500 or fewer) who have completed grade 9 are eligible to attend the institute. A nomination packet is required, and financial support is available.

166:035 Environmental Health Sciences Institute for Rural Youth 0 s.h.

**Wallace Summer Institute**

The Wallace Summer Institute for Rural Scholars is a one-week residential summer program that offers gifted students an intensive and advanced educational experience designed to enhance their intellectual and social growth. The institute’s curriculum was developed by the University of Iowa (State) Hygienic Laboratory. Instruction is provided by the laboratory’s staff.

Institute participants assess an aquatic environment from both field and laboratory perspectives. They observe and participate in sampling water, fish, insects, and other components of an area stream. They learn about types of samples necessary to determine water quality, what tests are done and why, how to perform the tests and interpret the results, and how to report significant findings effectively.

The week’s schedule also includes cultural and recreational activities. Participants have access to the University of Iowa Libraries, computer facilities, and study areas. Housing and meals are provided at University residence halls.

166:036 Wallace Summer Institute 0 s.h.

**Asian and Pacific Studies Institute**

The Asian and Pacific Studies Institute is a one-week residential summer program for gifted Iowa students in grades 9–11. The institute, a collaborative program of the UI Center for Asian and Pacific Studies and the Belin-Blank Center, provides talented students with an intensive and advanced educational experience designed to enhance intellectual and social growth. It enriches students’ understanding of the Asia-Pacific region through examination of key historical and contemporary events and exploration of how other Asian nations have responded to the opportunities and challenges of modernity.

166:037 Asian and Pacific Studies Institute 0 s.h.

**Academy for Legal Thought and Action**

The Academy for Legal Thought and Action is a two-week residential summer program for gifted high school students in grades 9–11. The academy, a collaborative program of the Belin-Blank Center and the UI College of Law, provides a unique opportunity for selected high school students to participate in a sophisticated law project. Students work as a team with faculty members and practicing professionals to solve an actual law problem. They develop technical skills and research knowledge, and learn team problem-solving skills. To be eligible to attend the institute, students must meet specific Belin-Blank Center guidelines.

166:038 Academy for Legal Thought and Action 0 s.h.
The University of Iowa presents several special programs for precollege students.

**Iowa Young Writers’ Studio**

**Director:** Trish Walsh  
**Web site:** [http://www.uiowa.edu/~iyws](http://www.uiowa.edu/~iyws)  

The Iowa Young Writers’ Studio is a two-week summer program for high school students who love to write and want to work with expert writing teachers at the University, improve their writing skills, and join a community of peers. The studio offers three courses of study: poetry, fiction, and creative writing (a mix of poetry, fiction, and creative nonfiction). All include seminars and workshops. In seminars, students get acquainted with the writer’s role and examine literature, as writers as well as readers. In workshops they share their own writing, get feedback from their classmates and teacher, and discuss issues of narrative and form.

The studio offers two sessions in June and July. Young writers who have completed grade 10, 11, or 12 are eligible to attend the studio. Application materials include an application form, a creative writing sample, a statement of purpose, a high school transcript, and a letter of recommendation from an English teacher or another instructor familiar with the applicant’s writing. For complete application information, contact the Iowa Young Writers’ Studio or visit the studio’s web site.

406:001 Iowa Young Writers’ Studio 0 s.h.

**Upward Bound Project**

**Director:** Jeanne Meyer  

The University of Iowa Upward Bound Project, a division of Support Service Programs, hosts a summer academic program for eligible high school students from five southeast Iowa communities. Upward Bound students who participate in the summer program reside on the University campus for six weeks. They take mathematics, science, language arts, and foreign language courses and participate in extracurricular activities and field trips. Bridge students (those who have graduated from high school) enroll in University course work for the eight-week summer session.

To be admitted to the Upward Bound Project, students must:

- reside in the target area;  
- be in the ninth or tenth grade;  
- have a family income that meets U.S. Department of Education low-income guidelines;  
- show need for Upward Bound Project services.

The Upward Bound Project provides services to students until they graduate from high school and enter a postsecondary education program of their choice. The University’s Upward Bound Project is funded by a U.S. Department of Education grant. Participants receive all services at no cost.

Currently, the University of Iowa project serves students who attend target schools in Burlington, Columbus Junction, Davenport, Fort Madison, Muscatine, and West Liberty, Iowa. Other postsecondary institutions in Iowa also sponsor Upward Bound Projects. High school students who do not attend target schools located in the communities served by The University of Iowa project should ask their counselors whether an Upward Bound Project serves their area.

For more information, contact the Upward Bound Project, The University of Iowa.

401:018 Upward Bound Project 0 s.h.

**Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>181:152</td>
<td>America in Other Words, 1-3 s.h.</td>
<td></td>
<td>The current idea of America in its imaginary form, drawing on post-1989 world fiction, poetry, and film in translation (using online translation resources) and in original language.</td>
</tr>
<tr>
<td>181:191</td>
<td>International Literature Today, 1, 3 s.h.</td>
<td></td>
<td>Same as 008:191.</td>
</tr>
</tbody>
</table>

**INTERNATIONAL WRITING PROGRAM**

**Director:** Christopher Merrill  
**Web site:** [http://www.uiowa.edu/~iwp](http://www.uiowa.edu/~iwp)  

The International Writing Program is a unique residency program for established writers from other countries. IWP participants range from emerging talents to writers who are among their countries’ leading literary figures and writers of world stature.

Each fall the International Writing Program assembles a community of poets, fiction writers, essayists, playwrights, and journalists. For most of them, the IWP is their first, or their first extended, stay in the United States. At the University they live and interact with each other while working on writing and translation projects, and they participate in 181:191 International Literature Today throughout their residency. They also interact with the public through a series of readings, panel discussions, and other presentations.

Since 1967, nearly a thousand writers from 115 countries have participated in the program. International Writing Program writers are supported by the U.S. Department of State, through bilateral agreements with many countries; by grants from cultural institutions and governments abroad; and by private funds. The program does not provide grants for writers.

For more information, contact the International Writing Program or visit the program’s web site.
Continuing Education

Interim dean: Cchet S. Rzonca  
Web site: http://www.continuetolearn.uiowa.edu

The Division of Continuing Education increases access to the services and resources of The University of Iowa. In partnership with the University’s colleges and departments, the division provides high-quality credit and noncredit courses, workshops, and programs to traditional and nontraditional learners. Using a variety of locations, schedules, and technologies, including audiovisual and video services, the division helps provide a University of Iowa learning environment beyond the physical borders of campus. The division’s organization and services include the following.

Audiovisual Center
Web site: http://www.uiowa.edu/~avcenter

The Audiovisual Center provides consultation, planning, design, production, and marketing of instructional audiovisual materials. Its media production units are the University’s major manufacturers of a broad range of graphic, photographic, and audio materials.

Graphics Unit: graphs, charts, maps, titles, layouts, posters, illustrations, models, exhibits, signage, lamination, and large-format printing

Photographic Service: black-and-white and color photographs, negatives, 2x2 slides, portraits, macrophotographs, many types of specialized photography, and digital enhancement and printing

Audio Unit: original audio recording (studio and location), duplication (CD and cassette), sound editing, equalizing, mixing, and transfer

The Audiovisual Center also markets and distributes audiovisual products originated at the University. Royalties are paid to sponsoring University departments and authors.

The center charges most University departments for materials only. When services are funded by grants, charges are made for materials and labor.

Center for Conferences and Institutes
Director: Jo Dickens  
Web site: http://www.uiowa.edu/~confinst

The Center for Conferences and Institutes (CCI) is the University’s principal agency for initiating, coordinating, conducting, and supporting noncredit continuing education programs. The center also serves as the University of Iowa’s CEU Database.

CCI coordinates conferences for University faculty, departments, colleges, administrative units, student groups and related academic societies, professional associations, and other groups sponsored by the University.

Distance Education Programs and Courses
Web site: http://www.continuetolearn.uiowa.edu/ccp/de

The Center for Credit Programs sponsors courses via several distance education formats.

Guided Independent Study courses are available through some 40 University departments. Students may enroll at any time, work at their own pace, and take up to nine months to complete a course. A catalog providing course listings (including courses offered via the World Wide Web), procedures, and enrollment information is available from the Center for Credit Programs and on the center’s web site.

University extension classes are scheduled where they best serve off-campus students, at the request of public school officials, and/or where professional, business, industrial, or other qualified groups express a need for instruction. The center also sponsors courses via the Iowa Communications Network, microwave television, the Internet, and other technologies. Further information is available from the Center for Credit Programs.

Bachelor of Liberal Studies
Web site: http://www.continuetolearn.uiowa.edu/ccp/bls

The Bachelor of Liberal Studies (B.L.S.) degree is offered by each of the three Board of Regents, State of Iowa universities (The University of Iowa, Iowa State University, and the University of Northern Iowa). It serves adults whose job, family, geographic location, or other personal circumstances prevent them from attending college as full-time, on-campus students. The program does not have a campus residence requirement.

Students may earn credit toward the degree in courses offered through the Center for Credit Programs, via campus-based or distance education formats, or through daytime on-campus courses.

At The University of Iowa, the B.L.S. is awarded by the College of Liberal Arts and Sciences and administered by the Division of Continuing Education. A detailed program description is available under “Liberal Studies” in the College of Liberal Arts and Sciences section of the Catalog and on the Center for Credit Programs web site.

Labor Center
Director: Daniel J. Holub  
Web site: http://www.uiowa.edu/~laborctr

The University of Iowa Labor Center provides educational and research services to Iowa trade unionists. The center offers a wide range of continuing and distance education programs on citizenship, collective bargaining, economics,
globalization and human rights, grievance and arbitration, labor and employment law, labor history, organization building and strategic planning, union leadership and administration, public policy, workplace health and safety, worker participation, and other areas relevant to union members. Courses are offered both on and off campus at times and locations convenient to working adults. The Labor Center also provides research assistance and technical information.

Institute of Public Affairs

The Institute of Public Affairs provides services and information to help officials maintain and strengthen the effectiveness of Iowa’s state and local governments. The institute offers the following educational programs, information, and publications for Iowa citizens and government leaders.

Strategic planning for councils and boards: facilitation and expert guidance for policy leadership groups determining goals and priorities.

Public management assistance: review of city operations, policies, and fiscal conditions for smaller communities.

Municipal Leadership Academy: an extensive training program for newly elected city council members and mayors.

Iowa Municipal Management Institute: conference for city and county administrators.

Local Government Services Sharing Program: help for local governments in identifying needs and creating shared service arrangements.

Municipal Policy Leaders’ Handbook: basic guide for mayors and council members in Iowa.

Video Center

Director: Daniel G. Lind
Web site: http://ui.video.uiowa.edu

The University Video Center (UVC) provides the University with a wide variety of professional video-based media production services in support of instruction, promotion, and research.

The center offers video production; digital video; authoring and media for CD ROM, DVD, and web delivery of video; and duplication services for videotape and DVD. Its services are provided by a professional staff of video development and technical experts.
The following persons held University of Iowa faculty appointments with the rank of instructor, assistant professor, associate professor, or professor May 1, 2004. In this listing, the year of first appointment follows the departmental identification, and the year of present appointment is given in parentheses.

Abbas, Paul J., BS Massachusetts Inst of Technolo, 1969; PhD Johns Hopkins, 1974; Professor, Speech Pathology & Audiology/Otolaryngology-Head & Neck Surgery, 1974 (1984)


Acarregui, Michael J., BS Drake, 1991; MD Blood Center of Wisconsin, 1996; Professor, Internal Medicine, 1997 (2001)


Adamek, Mary, BS Marquette, 1977; PhD Loyola, 1982; Professor, Electrical-Computer Engineering, 1982 (1992)


ACHUWA, ATIF, BA AMERICAN UNIVERSITY OF BUCHAREST, 1980; MBB CHIANG MAI, 1990; PhD KULA, 1997; Assistant Professor, Dentistry, 1999 (2004)

Achutan, P Chandran, BS SAINS MALAYSIA, 1991; MS IOWA, 1996; PHD IOWA, 2001; Adjunct Assistant Professor, Occupational & Environmental Health, 2001 (2006)


Adams, Sarah Margaret, BS University of Wisconsin, 1974; PhD Cornell University, 1981; Professor, Art & Art History, 1981 (1994)

Adams, John S., BS UW-Oshkosh, 1963; MS U OF IOWA, 1964; PhD UW-Madison, 1967; Adj Clinical Assistant Professor, Internal Medicine, 1967 (1987)


Adkins, Robert J., BS Michigan State, 1963; BS Drake, 1973; MS Drake, 1977; PhD Drake, 1982; Adj Associate Professor, Dentistry, 1982 (1990)

Adkins, William S., BS Kansas State, 1967; PhD Drake, 1977; Adj Professor, Biological Sciences, 1977 (1982)


Adkins, Rebecca L., BS Drake, 1971; BA Drake, 1973; MS Drake, 1979; Adj Clinical Assistant Professor, Respiratory Care, 1979 (1984)

Adkins, William S., BS Kansas State, 1967; PhD Drake, 1977; Adj Professor, Biological Sciences, 1977 (1982)


Adkins, Rebecca L., BS Drake, 1971; BA Drake, 1973; MS Drake, 1979; Adj Clinical Assistant Professor, Respiratory Care, 1979 (1984)

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Adkins, William S., BS Kansas State, 1967; PhD Drake, 1977; Adj Professor, Biological Sciences, 1977 (1982)


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Adkins, William S., BS Kansas State, 1967; PhD Drake, 1977; Adj Professor, Biological Sciences, 1977 (1982)


Adkins, William S., BS Kansas State, 1967; PhD Drake, 1977; Adj Professor, Biological Sciences, 1977 (1982)
Byrne, John Paul, BBA Notre Dame, 1987, MBA Loyola, 1990, PHD Iowa, 1996; Adjunct Assistant Professor, Marketing, 1990 (1998)

Bzdenga, Holley A., MD MONTANA (CANADA), 1978; Adj Clinical Asst Professor, Pediatrics, 1987 (1987)

Cabrol, Nathalie A., MS SORBONNE, FRANCE, 1986, DPHL SORBONNE, FRANCE, 1991; Adjunct Assistant Professor, Industrial Engineering, 2003

Cabuy, Barry M., BS LOUISVILLE, KENTUCKY, 1992, MD LOUISVILLE, KENTUCKY, 1996; Assistant ProfessorClinical, Internal Medicine, 2001 (2003)


Carmichael, Gregory R., BS Iowa State, 1974, MS Kentucky, 1975, PHD Kentucky, 1979; Professor, Chemical & Environmental Engineering, 1987 (1988)


Carney, Lee T., BS OKLAHOMA, 1983, BS IOWA, 1990; Adjunct Assistant Professor, Health Management & Policy, 2002


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Casas, Donald Rex, BSPE IOWA, 1950, MA IOWA, 1953, PHD IOWA, 1959; Professor Emeritus, Health, Leisure & Sport Studies, 1958 (1965)


Case, Bradley, Michael John, PHARM DRAKE, 2002; Adjunct Assistant Professor, Pharmacy, 2003


Cassady, Sandra Lee Hauser, PHD IOWA, 1992; Adjunct Assistant Professor, Physical Therapy, 1992 (1992)

Cassett, Kevin Brian, BS IOWA, 1988; Adjunct Instructor, Pharmacy, 2002


Catalano, Cosmo A., BA ALLEGHENY, 1950, MFA YALE, 1953; Professor Emeritus, Theatre Arts, 1966 (1975)


Cates, Christine Marie, BS ST LOUIS COLL OF PHARMACY, 1975, MA IOWA, 1986, PHARM IOWA, 1996; Assistant ProfessorClinical, Pharmacy, 1990 (1990)

Cauhghen, Charles R., MS IOWA, 1973; Adj Clinical Asst Professor, Internal Medicine, 1992 (1997)

Cavalcanti, Marcello G, PHD SAO PAULO, 1995; Adjunct Assistant Professor, Radiology/Oral Path, 1997 (2000)


Cazin, John, BS NORTH CAROLINA, 1952, MS NORTH CAROLINA, 1954, PHD NORTH CAROLINA, 1957; Professor Emeritus, Microbiology, 1957 (1972)

Cearlock, Kenneth, MD MISSOURI, 1979; Adj Clinical Asst Professor, Family Medicine, 2000

Ceilley, Roger Ivan, MD IOWA, 1971; Adjunct Clinical Professor, Dermatology, 1979 (2004)

Cerhan, James Robert, MD IOWA, 1993; Adjunct Associate Professor, Epidemiology, 2000

Cerone, Shane Michael, MA IOWA, 1995; Adjunct Assistant Professor, Health Management & Policy, 1998

Cerreta, Florindo V., JR BORDEAUX, 1947, MA IOWA, 1951; Associate Professor, Internal Medicine, 1998 (2000)

Carter, Anthony David, BA CORNELL COLLEGE IA, 1969; Do Un of Orthopaedic Medicine, 1995;

Carter, Barry Lynn, BS IOWA, 1978, PHARM Virginia, 1980; Professor, Pharmacy/Family Medicine, 2000 (2000)

CARTER, DEANNA, BS HIGH GROVE, 1976; Adjunct Assistant Professor, Preventive & Community Dentistry, 2000

Carter, James G., BS IOWA, 1951, MS ILLINOIS, 1955; Professor Emeritus, Pharmacy, 1962 (1965)

Carter, Arthur, BA IOWA, 1946, MA IOWA, 1948, PHD IOWA, 1950; Professor Emeritus, Psychiatry, 1958 (1964)


Fattal, Deema A., BS AMERICAN-BEIRUT, 1989; MD AMERICAN-BEIRUT, 1993; Assistant Professor, Clinical, Neurology, 1999

Faust, Ethel Felicia, MD IOWA, 1992; Adjunct Clinical, Internal Medicine, 1997 (1997)

Fear, Kathleen Marie Tenhundfeld, BSN IOWA, 1994, MSN IOWA, 2000; Adjunct Instructor, Nursing, 2002

Field, Joan E., MD ILLINOIS (CHICAGO), 1982; AdjAlt Clinical Professor, Internal Medicine, 1987 (1987)

Fehr, Bruce Rayson, BA Iowa, 1970, MA Iowa, 1971, PHD Wisconsin, 1991; Associate Professor, Forestry, 1986 (1990)


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Felder, Robert B., BA North Carolina, 1968, MD North Carolina, 1972; Professor, Internal Medicine, 1992 (1992)

Feldman, Louis, BS SUNY-SUSQUEHANNA, 1969, BS ST MARYS, 1995; MD ILLINOIS, 1983; Adjunct Assistant Professor, Medicine, 2002

Feldlmood, Joanna, BS IOWA, 1997; Adjunct Instructor, Pharmacy, 2000 (2000)


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Field, Robert William, BS PENNSYLVANIA, 1977, MS PENNSYLVANIA, 1985, PHD IOWA, 1994; Associate Professor, Occupational & Environmental Health/Epidemiology, 1994 (1994)


Fieselmann, John F., BS Iowa, 1968, MD Iowa, 1972; Professor, Pathology/Anatomy & Cell Biology, 1995 (2002)

Fieselmann, Randee G., PHD IOWA, 2001; Adjunct Assistant Professor, Sociology, 2001 (2001)

Fikurt, J. Richard, BS ILLINOIS IOWA, 1975, ST LOUIS, 1983; Adjunct Instructor, Pharmacy, 2002

Filli, James Michael, DDS New York University, 1900, MSU U of Iowa, 1997; Adjunct Assistant Professor, Periodontics, 2003 (2003)

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Finneran, Shirley, BA BRIAR CLIFF, 1971, MSW ILLINOIS-CHICAGO, 1976; Adjunct Instructor, Social Work, 2002

Finlay, Linda Reed, MS Iowa, 1971; Adjunct Clinical Instructor, Nursing, 2000 (2000)

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Finley, Michael, BS IOWA, 1970, BS Michigan, 1973, BS IOWA, 1976; Adjunct Professor, Social Work, 2002


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Flanigan, Michael J., BS Wisconsin-Milwaukee, 1971, MD Wisconsin-Madison, 1975; Professor, Internal Medicine, 1980 (2003)

Flaxey, Brenna, Patricia, BS DELAWARE-NEWARK, 1975, MS PENNSYLVANIA, 1978, PHD WISCONSIN, 1986; Adjunct Professor, Nursing, 2002


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Fletcher, Mavis Sue, BS Nebraska Wesleyan, 1989, MD Iowa, 1993; Assistant Professor(Clinical), Pathology, 1990 (1990)

Flood, Michael T., BA HOLLY CROSS, 1972; Adj Adjunct Clinical Assistant, Internal Medicine, 1992 (1992)

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Klein, John, BS ROCKY MOUNT COLLEGE, MT., 1984; MD UTAH, 1994; Adj Clinical Assistant Professor, Family Medicine, 2003 (1997)
Klein, Jonathan M., BA Johns Hopkins, 1980, MD Medical College of VA, 1984; Associate Professor, Pediatrics, 1990 (1997)
Kleinfeld, Erwin, BS CITY COLLEGE OF NY, 1948, MA PENNSYLVANIA, 1949, PHD WISCONSIN, 1951; Professor Emeritus, Mathematics, 1968 (1968)
Kleinfeld, Margaret, BA Rochester, 1960; MS Syracuse, 1963, PhD Syracuse, 1965; Professor Emeritus, Mathematics, 1968 (1990)
Kline, Jeremy Lynn, DDS, 1985; Adjunct Instructor, Preventive & Community Dentistry, 2001 (2001)
Klingebuzh, Alyosius John, BS ST JOHNS, 1986, PHD Wisconsin, 1991; Associate Professor, Microbiology, 1990 (1999)
Klinger, George S., BA BUCKNELL, 1962, PhD IOWA, 1974; Associate Professor Emeritus, Communication Studies, 1974 (1984)
Klinke, William H., BA Michigan, 1979, PhD Johns Hopkins, 1964; Professor, Physics & Astronomy/Mathematics, 1965 (1975)
Klise, Kurt J., BA WASHBURN, 1978, KS MANSAS, 1982; Adj Clinical Assistant Professor, Family Medicine, 1997
Kluesner, Martin Charles, PHARMD IOWA, 2001; Adjunct Assistant Professor, Pharmacy, 2004
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Knarr, Warren Alfred, PhD IOWA, 1960; Adjunct Instructor, Pharmacy, 1988 (1988)
Knight, Gordon Patrick, PhD IOWA, 1993; Adjunct Assistant Professor, Philosophy, 1992 (1984)
Knipper, Jane S., MA IOWA, 1983; Adj Clinical Assistant Professor, Nursing, 1978 (2000)
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Knudson, C, Michael, BSE Iowa, 1984, MD IOWA, 1992, PhD IOWA, 1992; Assistant Professor, Pathology/Radiation Oncology, 1998 (2006)
Knudson, Rick, PHARMD DRAKE, 1998; Adjunct Assistant Professor, Pharmacy, 2000
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Koch, Brenton Bert, BA DRAKE, 1989, MI 1992, Adj Clinical Assistant Professor, Otolaryngology-Head & Neck Surgery, 2003
Olmsted, John S.,
Oliver, Denis Richard,
Oliver, Alison Louise,
Oliveira, Suely P.,
Olin, William H.,
Oleson, Jacob Jay,
Oneill, Patrick Joseph,
Olesberg, Jonathon Todd,
Oren, Ron M.,
Opdebeeck, Kathleen,
Ossoinig, Karl C.,
Osborne, James W.,
Osland, Craig S.,
Osland, Karl C.,
Oswin, Dale R.,
Pachow, Wang,
Padomek, Michael T.,
Parkin, Eugene F.,
Parkin, Gene F.,
Parkin, William F.,
Parkin, John,
Park, John,
Parker, Wayne,
Parker, Henry L.,
Parker, David,
Park, Joon B.,
Parker, Robert,
Parker, Mark,
Parker, Joseph W.,
Parker, Paul,
Park, Sean,
Parks, Beck R.,
Parks, Beth R.,
Parratt, Catriona,
Parsons, Donald B.,
Parsley, Matthew C.,
Patel, Virendra C.,
Padomek, Michael T.,
Payne, Gerald L.,
Paterson, George W.,
Parsons, Robert O.,
Orr, John B.,
Orten, Donna J.,
Otto, Sue Ellen Kovacic,
Ottohaus, W.,
Ott, Rachel J.,
Ott, Heidi H.,
Ott, Hiltz,
Ott, Mark,
Ott, Scott M.,
Osabia, Carlos,
Osborne, Colin,
Ott, Karl C.,
Ott, Robert H.,
Ott, William J.,
Ott, John R.,
Ott, D. L.,
Ott, John C.,
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Ott, John B.,
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Pennyr, Donald Eugene, MD IOWA, 1985; Adj Clinical Asst Professor, Internal Medicine, 2000 (2002)
Peacock, Anne Elaine, MSN San Diego State, 1987; Adjunct Clinical Instructor, Nursing, 2000 (2000)
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PEATE, INCRED UIKINS, BA Mount Holyoke, 1994, MS CAL-DAVIS, 1998, PHD LONDON, 2003; Adjunct Assistant Professor, Geoscience, 2004 (2000)
Pedersen, Douglas Ray, BS Iowa, 1979, MS Iowa, 1983, PHD Iowa, 1998; Adjunct Associate Professor, Biomedical Engineering, 2001
Pedersen, Lauren, MBA DE MOLINES, IA, 2003, PHARM DRAKE, 2003; Adjunct Instructor, Pharmacy, 2003
Peek, Thomas Leigh, BS OKLAHOMA STATE, 1973, DDS IOWA, 1976, MSW IOWA, 1978, JD OKLAHOMA CITY, 1989; Assistant Professor(Clinical), Endodontics, 2003
Peek-Asa, Corinne, BS Illinois-Urbana, 1979, PHD ILLINOIS, 1999; MSY IOWA, 1979; Adjunct Instructor, Social Work, 2002
Peeters, Mark A., BA Harvard, 1983, PHD IOWA, 1997; Adjunct Assistant Professor, Pharmacy, 2000
Pesut, Daniel J., BS PHARMD IOWA, 1981; Adj Clinical Assistant Professor, Pharmacy, 1982; Adj Clinical Instructor, Surgery, 1980 (1981)
Peters, Karen E., BS IOWA, 1999, MS IOWA, 2003; Adjunct Assistant Professor, Pharmacy, 2000
Petersen, Dorothy Marie, BA Ohio, 1971, PHD IOWA, 1985; Adjunct Assistant Professor, Edu Policy & Leadership Studies, 2002 (2002)
Pemberton, Jane Frances, PhD IOWA, 1980; Adjunct Associate Professor, Education, 2004
Peng, Jiawen, BS IOWA, 1985, PHD Stanford, 1989; Assistant Professor, Epidemiology, 2003
Peters, Betty J., BA Illinois, 1985, MSW IOWA, 1990; Adjunct Assistant Professor, Social Work, 2002
Peters, Bobbi Xavier, BS Houston Baptist, 1990, MD Texas Medical, 1996; Assistant Professor(Clinical), Program in Emergency Medicine, 2003
PETERS, PHILIP M., BS FLORIDA, 1990, MS FLORIDA, 1992, PHD N Carolina, 2004; Assistant Professor, Occupational & Environmental Health, 2004
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Petersson, Daniel, MD FEDERAL DISTRICT, 1992; Adject Assistant Professor, Clinical Pharmacy, 1992 (1992)
Petersson, Carl M H, MD MISSOURI-COLUMBIA, 1974; Adj Clinical Assistant Professor, Surgery, 1985 (1985)
Peters, Daren T., MD IOWA, 1997; Adjunct Assistant Professor, Occupational & Environmental Health, 2004
Peterson, Richard E., MD IOWA, 1972; Adj Clinical Assistant Professor, Internal Medicine, 1975 (2000)
Peterson, Timothy Dale, MD IOWA, 1990, PHD IOWA, 1997; Adjunct Assistant Professor, Pharmacy, 2000
Peterson, Lawrence C., BS IOWA, 1998; Adjunct Instructor, Nursing, 2003
Peterson, N Andrew, PHD MISSOURI-COLUMBIA, 1996; Adj Clinical Assistant Professor, Surgery, 1996 (1996)
Phillips, George, BS DUKE, 1993, MD SOUTH CAROLINA, 1998; Assistant Professor(Clinical), Pediatrics, 2002
Phillips, Susan Marie, PHARM D IOWA, 1997; Adjunct Instructor, Pharmacy, 1997 (1997)
Pickar, Joel F., MD CALIFORNIA-DAVIS, 1990; Adjunct Associate Professor, Biomedical Engineering, 1999 (2000)
Pienta, Norbert J., BS ROCHESTER, 1974, PHD NORTH CAROLINA, 1978; Associate Professor, Chemistry, 1999 (1999)
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Pietrzyk, Donald J., BS Wayne State, 1956, PHD IOWA State, 1960; Professor Emeritus, Chemistry, 1961 (1971)
Piette, Warren W., BS Texas A&M, 1972, MD Texas, 1975; Professor, Dermatology, 1982 (1994)
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Pinter, David J., BA IOWA, 1990, MA EMPIRE STATE, 2001; Adjunct Assistant Professor, Military Science, 2002
Pipy, Robert C., BS Reed, 1986, PHD Washington University, 1992; Associate Professor, Physiology, 1997 (2003)
Piro, James G., MD ILLINOIS, 1971; Adj Clinical Assistant Professor, Internal Medicine, 1974 (1980)
Pinney, Francis L., BS IOWA STATE, 1967, MD IOWA, 1971; Adj Clinical Assistant Professor, Family Medicine, 1975 (1975)
Pitman, Elizabeth Summer, PHARM D IOWA, 1998; Adjunct Assistant Professor, Pharmacy, 2000
Ploehn, Lisa C., PHARM NEBRASKA-OMAHA, 1980; Adjunct Instructor, Pharmacy, 1997 (1997)
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Sharp, Victoria Jean Allen, BS GEORGE MASON, 1983, MA ARIZONA, 1993, MBA IOWA, 2003; Associate Professor(Clinical), Ultrasound/Physics, 2002.
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Sheets, Scott James, PHD IOWA, 2000; Adj Clinical Asst Professor, Pediatrics, 2004.
Shelman, Rick Allen, MD IOWA, 1990; Adj Clinical Asst Professor, Surgery, 1999.
Shepley, Alan Martin, BS IOWA, 1971; Adjunct Instructor, Pharmacy, 1997 (1997).
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Shih, Min, BS Chin-Tai, 1976, PHD IOWA, 1983; Professor, Biological Sciences, 1988 (2003).
Shires, Robert S., BS NEBRASKA WESLEYAN, 1972, MD NEBRASKA, 1975; Adj Clinical Asst Professor, Family Medicine, 1990.
Shivapour, Ezzatollah Torage, MD Tabriz, 1972; Associate Professor(Clinical), Neurology, 1980 (1980).
Shivers, Matthew James, BS IOWA, 1978; Adjunct Instructor, Pharmacy, 2003.
Shook, Steven Leroy, BA IOWA, 1978, MD IOWA, 1983; Adj Clinical Asst Professor, Family Medicine, 1994.
Shinostrom, F Larry, PHD KANSAS STATE, 1985; Adjunct Assistant Professor, Family Medicine, 1997 (1997).
Shoultz, Amy Kathleen Engelbert, BA COE, 1985, MAT IOWA, 1990, PHD IOWA, 2002; Assistant Professor(Clinical), Curriculum & Instruction, 2002 (2002).
Sibney, David, MD BENG College, 1964, MD MINNESOTA, 1968; Adj Clinical Asst Professor, Surgery, 2004.
Sidney, Rebecca Sue, DO OSTEOPATHIC MED & HEALTH, 1989; Adjunct Clinical Instructor, Internal Medicine, 1997 (1997).
Siegel, Scott Alan, MFA IOWA, 1997; Adjunct Assistant Professor, 2000 (2001).
Siewert, Rebecca, BS ST. JEROME, 1985, MS ILLINOIS,CHICAGO, 1990, PHD RUSH,JILL, 2002; Adjunct Assistant Professor, Nursing, 2004.
Sigmund, Curt D., BA State Univ of NY-Buffalo, 1982, MA State Univ of NY-Buffalo, 1984, State Univ of NY-Buffalo, 1987; Professor, Internal Medicine, 1999 (2000).
Silva, Dean, MD CREIGHTON, 1980; Adj Clinical Asst Professor, Family Medicine, 1990 (1993).
Skeete, Dionne A., MD WASHINGTON-ST LOUIS, 1996; Assistant Professor(Clinical), Surgery, 2001.
Skopeck, Gregory Steven, BA NORTHERN IOWA, 1984, MD IOWA, 1990; Adj Assistant Professor(Clinical), Obstetrics & Gynecology, 2002.
Skopeck, Mary Patricia, PHD IOWA, 1999; Adjunct Assistant Professor, Geography, 2001 (2001).
Sladek, Stephen M., MD CALIFORNIA, 1984; Adj Clinical Asst Professor, Family Medicine, 2000 (2000).
Stratton, Margaret M., BA Evergreen State, 1977, MA New Mexico, 1983, MFA New Mexico, 1985; Professor, Art & Art History, 1999 (2000)

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Sullivan, Ronald G., BS Capital, 1961, MD Cincinnati, 1965; Professor, Pathology/Pediatrics, 1970 (1980)


Sun, Lizhi, BS Shijiazhuang, 1987; MS Engineering, 1990, PhD Columbia, 2000; Associate Professor, Oral & Maxillofacial Surgery, 1994 (2001)

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Tannous, Raymond, MD France, 1971; Associate Professor, Pediatrics, 1977 (1982)

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The following is extracted from the Board of Regents section of the Iowa Administrative Code as of May 15, 2004.

Admission Rules
Common to the Three State Universities

681—1.1(262) Admission of undergraduate students directly from high school

Students desiring admission must meet the requirements in this section and also any special requirements for the curriculum, school, or college of their choice.

Applicants must submit a formal application for admission, together with a $20 application fee for U.S. citizens or permanent residents for applicants to Iowa State University and the University of Northern Iowa or a $30 application fee for applicants to the University of Iowa and a $50 application fee for foreign students, and have their secondary school provide a transcript of their academic record, including credits and grades, rank in class, and certification of graduation. Applicants must also submit scores from the American College Test (ACT) or the Scholastic Aptitude Test (SAT), or the equivalent, as determined by each university. The Test of English as a Foreign Language (TOEFL) is required of foreign students whose first language is not English. Applicants may be required to submit additional information or data to support their applications.

1.1(1) Graduates of approved Iowa high schools who have the subject matter background as recommended by each university and who rank in the upper one-half of their graduating class will be admitted. Applicants who are not in the upper one-half of their graduating class may, after a review of their academic and test records, and at the discretion of the admissions officers:
  a. Be admitted unconditionally,
  b. Be admitted conditionally,
  c. Be required to enroll for a tryout period during a preceding summer session, or
  d. Be denied admission.

1.1(2) Graduates of accredited high schools in other states may be held to higher academic standards, but must meet at least the same requirements as graduates of Iowa high schools. The options for conditional admission or summer tryout enrollment may not necessarily be offered to these students.

1.1(3) Applicants who are graduates of nonapproved high schools will be considered for admission in a manner similar to applicants from approved high schools, but additional emphasis will be given to scores obtained on standardized examinations. Applicants who are not high school graduates, but whose classes have graduated, may be considered for admission. They will be required to submit all academic data to the extent that it exists and achieve scores on standardized examinations which will demonstrate that they are adequately prepared for academic study.

Students with superior academic records may be admitted, on an individual basis, for part-time university study while enrolled in high school or during the summers prior to high school graduation.

In rare situations, exceptional students may be admitted as full-time students to a regent university before completing high school. Early admission to a regent university is provided to serve persons whose academic achievement and personal and intellectual maturity clearly suggest readiness for collegiate level study. Each university will specify requirements and conditions for early admission.

This rule is intended to implement Iowa Code section 262.9(3).

681—1.2(262) Admission of undergraduate students by transfer from other colleges

Students desiring admission must meet the requirements in this section and also any special requirements for the curriculum, school, or college of their choice.

Applicants must submit a formal application for admission, together with a $20 application fee for U.S. citizens or permanent residents for applicants to Iowa State University and the University of Northern Iowa or a $30 application fee for applicants to the University of Iowa and a $50 application fee for foreign students, and request that each college they have attended send an official transcript of record to the admissions office. High school academic records and standardized test results may also be required. The Test of English as a Foreign Language (TOEFL) is required of foreign students whose first language is not English.

1.2(1) Transfer applicants with a minimum of 24 s.h. of graded credit from regionally accredited colleges or universities, who have achieved for all college work previously attempted the grade point required by each university for specific programs, will be admitted. Higher academic standards may be required of students who are not residents of Iowa.

Applicants who have not maintained the grade point required by each university for specific programs or who are under academic suspension from the last college attended may, after a review of their academic and test records, and at the discretion of the admissions officers:
  a. Be admitted unconditionally,
  b. Be admitted conditionally,
  c. Be required to enroll for a tryout period during a preceding summer session, or
  d. Be denied admission.

1.2(2) Admission of students with fewer than 24 s.h. of college credit will be based on high school academic and standardized test records in addition to review of the college record.

1.2(3) Transfer applicants under disciplinary suspension will not be considered for admission until information concerning the reason for the suspension has been received from the college assigning the suspension. Applicants granted admission under these circumstances will be admitted on probation.

1.2(4) Transfer applicants from colleges and universities not regionally accredited will be considered for admission on an individual basis taking into account all available academic information.

This rule is intended to implement Iowa Code section 262.9(3).

681—1.3(262) Transfer credit practices

The regent universities endorse the Joint Statement on Transfer and Award of Academic Credit approved in 1978 by the American Council on Education (ACE), the American Association of Collegiate Registrars and Admissions Officers (AACRAO), and the Council on Postsecondary Accreditation (COPA). The current issue of Transfer Credit Practices of Selected Educational Institutions, published by the American Association of Collegiate Registrars and Admissions Officers (AACRAO), and publications of the Council on Postsecondary Accreditation (COPA) are examples of references used by the universities in determining transfer credit. The acceptance and use of transfer credit is subject to limitations in accordance with the educational policies operative at each university.

1.3(1) Students from regionally accredited colleges and universities

Credit earned at regionally accredited colleges and universities is acceptable for transfer except that credit in courses determined by the receiving university to be of a remedial, vocational, or technical nature, or credit in courses or programs in which the institution granting the credit is not directly involved, may not be accepted, or may be accepted to a limited extent.

Of the course work earned at a two-year college, students may apply up to one-half but no more than 65 hours of the credits required for a bachelor’s degree toward that degree at a regent university. This policy became effective September 29, 1993.

1.3(2) Students from colleges and universities which have candidate status

Credit earned at colleges and universities which have become candidates for accreditation by a regional association is acceptable for transfer in a manner similar to that from regionally accredited colleges and universities if the credit is applicable to the bachelor’s degree at the receiving university.
Credit earned at the junior and senior classification from an accredited two-year college which has received approval by a regional accrediting association for change to a four-year college may be accepted by a regent university.

1.3(3) Students from colleges and universities not regionally accredited

When students are admitted from colleges and universities not regionally accredited, they may validate portions or all of their transfer credit by satisfying academic study in residence, or by examination. Each university will specify the amount of the transfer credit and the terms of the validation process at the time of admission.

In determining the acceptability of transfer credit from private colleges in Iowa which do not have regional accreditation, the regent committee on educational relations, upon request from the institutions, evaluates the nature and standards of the academic program, faculty, student records, library, and laboratories.

In determining the acceptability of transfer credit from colleges in states other than Iowa which are not regionally accredited, acceptance practices indicated in the current issue of Transfer Credit Practices of Selected Educational Institutions will be used as a guide. For institutions not listed in the publication, guidance is requested from the designated reporting institution of the appropriate state.

1.3(4) Students from foreign colleges and universities

Transfer credit from foreign educational institutions may be granted after a determination of the type of institution involved and after an evaluation of the content, level, and comparability of the study to courses and programs at the receiving university. Credit may be granted in specific courses, but is frequently assigned to general areas of study. Extensive use is made of professional journals and references which describe the education systems and programs of individual countries.

This rule is intended to implement Iowa Code section 262.9(3).

Residence

681—1.4(262) Classification of residents and nonresidents for admission, tuition, and fee purposes

1.4(1) General

a. A person enrolling at one of the three state universities shall be classified as a resident or nonresident for admission, tuition, and fee purposes by the registrar or someone designated by the registrar. The decision shall be based upon information furnished by the student and other relevant information.

b. In determining resident or nonresident classification, the issue is essentially one of why the person is in the state of Iowa. If the person is in the state primarily for educational purposes, that person will be considered a nonresident. For example, it may be possible that an individual could qualify as a resident of Iowa for such purposes as voting, or holding an Iowa driver’s license, and not meet the residency requirements as established by the Board of Regents for admission, tuition, and fee purposes.

c. The registrar, or designated person, is authorized to require written documents, affidavits, verifications, or other evidence deemed necessary to determine why a student is in Iowa. The burden of establishing that a student is in Iowa for other than educational purposes is upon the student.

A student may be required to file any or all of the following:

1. A statement from the student describing employment and expected sources of support;
2. A statement from the student’s employer;
3. A statement from the student’s parents verifying nonsupport and the fact that the student was not listed as a dependent on tax returns for the past year and will not be so listed in future years;
4. Supporting statements from persons who might be familiar with the family situation;
5. Iowa state income tax return.

d. Change of classification from nonresident to resident will not be made retroactive beyond the term in which application for resident classification is made.

e. A student who gives incorrect or misleading information to evade payment of nonresident fees shall be subject to serious disciplinary action and must also pay the nonresident fees for each term previously attended.

f. Review Committee. These regulations shall be administered by the registrar or someone designated by the registrar. The decision of the registrar or designated person may be appealed to a university review committee. The finding of the review committee may be appealed to the state board of regents.

1.4(2) Guidelines

The following guidelines are used in determining the resident classification of a student for admission, tuition, and fee purposes:

a. A financially dependent student whose parents move from Iowa after the student is enrolled remains a resident provided the student maintains continuous enrollment. A financially dependent student whose parents move from Iowa during the senior year of high school will be considered a resident provided the student has not established domicile in another state.

b. In deciding why a person is in the state of Iowa, the person’s domicile will be considered. A person who comes to Iowa from another state and enrolls in any institution of postsecondary education for a full program or substantially a full program shall be presumed to come to Iowa primarily for educational reasons rather than to establish a domicile in Iowa.

c. A student who was a former resident of Iowa may continue to be considered a resident provided absence from the state was for a period of less than 12 months and provided domicile is reestablished. If the absence from the state is for a period exceeding 12 months, a student may be considered a resident if evidence can be presented showing that the student has long-term ties to Iowa and reestablishes an Iowa domicile.

A person or the dependent of a person whose domicile is permanently established in Iowa, who has been classified as a resident for admission, tuition, and fee purposes, may continue to be classified as a resident so long as domicile is maintained, even though circumstances may require extended absence of the person from the state. It is required that a person who claims Iowa domicile while living in another state or country will provide proof of the continual Iowa domicile as evidence that the person:

1. Has not acquired a domicile in another state,
2. Has maintained a continuous voting record in Iowa, and
3. Has filed regular Iowa resident income tax returns during absence from the state.

d. A student who moves to Iowa may be eligible for resident classification at the next registration following 12 consecutive months in the state provided the student is not enrolled as more than a half-time student (6 credits for an undergraduate or professional student, 5 credits for a graduate student) in any academic year term, is not enrolled for more than 4 credits in a summer term for any classification, and provides sufficient evidence of the establishment of an Iowa domicile.

e. A student who has been a continuous student and whose parents move to Iowa may become a resident at the beginning of the next term provided the student is dependent upon the parents for a majority of financial assistance.

f. A person who is moved into the state as the result of military or civil orders from the government for other than educational purposes, or the dependent of such a person, is entitled to resident status. However, if the arrival of the person under orders is subsequent to the beginning of the term in which the student is first enrolled, nonresident fees will be charged in all cases until the beginning of the next term in which the student is enrolled. Legislation, effective July 1, 1977, requires that military personnel who claim residency in Iowa (home of record) will be required to file Iowa resident income tax returns.

g. A person who has been certified as a refugee or granted asylum by the appropriate agency of the United States who enrolls as a student at a university governed by the Iowa state board of regents may be accorded immediate resident status for admission, tuition, and fee purposes where the person:

1. Comes directly to the state of Iowa from a refugee facility or port of debarkation; or
2. Comes to the state of Iowa within a reasonable time and has not established domicile in another state.

Any refugee or individual granted asylum not meeting these standards will be presumed to be a nonresident for admission, tuition, and fee purposes and thus subject to the usual method of proof of establishment of Iowa residency.

h. An alien who has immigrant status establishes Iowa residency in the same manner as a United States citizen.

i. At the regent institutions, American Indians who have origins in any of the original people of North America and who maintain a cultural identification through tribal affiliation or
community recognition with one or more of the tribes or nations connected historically with the present state of Iowa, including the Iowa, Kickapoo, Menominee, Miami, Missouri, Ojibwa (Chippewa), Omaha, Otoe, Ottowa (Odawa), Potawatomi, Sac and Fox (Sauk, Meskwaki), Sioux, and Winnebago (Ho Chunk), will be assessed Iowa resident tuition and fees.

**1.4(3) Facts**

a. The following circumstances, although not necessarily conclusive, have probative value in support of a claim for resident classification:

1. Residence in Iowa for 12 consecutive months, and be primarily engaged in activities other than those of a full-time student, immediately prior to the beginning of the term for which resident classification is sought.

2. Reliance upon Iowa resources for financial support.

3. Domicile in Iowa of persons legally responsible for the student.

4. Former domicile in the state and maintenance of significant connections therein while absent.

5. Acceptance of an offer of permanent employment in Iowa.

6. Other facts indicating the student’s domicile will be considered by the universities in classifying the student.

b. The following circumstances, standing alone, do not constitute sufficient evidence of domicile to effect classification of a student as a resident under these regulations:

1. Voting or registration for voting.

2. Employment in any position normally filled by a student.

3. The lease of living quarters.

4. Admission to a licensed practicing profession in Iowa.

5. Automobile registration.

6. Public records, for example, birth and marriage records, Iowa driver’s license.

7. Continuous presence in Iowa during periods when not enrolled in school.

8. Ownership of property in Iowa, or the payment of Iowa taxes.

This rule is intended to implement Iowa Code section 262.9.

### Supplemental Specific Rules to The University of Iowa

#### 681 — 2.1(262) Formal application for admission

All applicants for admission to any college of the University of Iowa must submit a formal application for admission with the required official transcripts and other supporting material as required to the director of admissions. Students may not be registered until they have been issued an admission statement by the director of admissions.

#### 681 — 2.3(262) College of Business Administration

**2.3(1) Application for admission**

Applications for admission to the college of business administration should be submitted to the director of admissions.

Applicants are urged to apply as early as possible, since this will give the admissions committee more time to devote to each application. Closing dates for receiving applications will be announced well in advance of the opening date of any session.

**2.3(2) Requirements for admission**

For admission to the college of business administration an applicant must have—

a. Completed specific course work as prescribed by the faculty of the college.

b. Attained satisfactory scores on the university's required examination admissions.

c. Maintained a satisfactory grade-point average on all courses undertaken, and on all courses undertaken at the University of Iowa, and on all courses undertaken in business and economics.

Applications from students who have minor deficiencies in meeting grade-point requirements specified above will be reviewed by the admissions committee of the college, and upon favorable recommendation of the committee, such students may be granted conditional or probationary admissions.

Fulfillment of the minimal requirements listed above, however, does not assure admission to the college of business administration. From those applicants who meet the minimum requirements, the admissions committee will select the applicants who, in their judgment, appear to be best qualified.

#### 681 — 2.4(262) College of Dentistry

**2.4(1) Application for admission**

Address all inquiries regarding admission to the Director of Admissions, University of Iowa.

Applicants are urged to apply as early as possible, since this will give the admissions committee more time to devote to each application. Closing dates for receiving applications will be announced well in advance of the opening date of any session.

Applicants for admission to dentistry are encouraged to complete a program leading to a baccalaureate degree before entering dentistry. Applicants should consider a combined program of liberal arts and dentistry which would qualify them for a baccalaureate degree upon the completion of the freshman year in dentistry. Preference will be given to students who have the baccalaureate degree or who have completed the requirements for the degree in a combined program.

Fulfillment of the specific requirements for admission listed does not ensure admission to the college of dentistry. From the applicants meeting the minimum requirements, the admissions committee will select the applicants who in their judgment appear to be best qualified for the study and practice of dentistry.

Each applicant must place on file in the office of the director of admissions the completed application form and an official transcript from each college attended.

The college work outlined below will suffice to meet the minimal academic requirements for admission to the college of dentistry.

The college curriculum must include at least three academic years of accredited work comprising not less than 96 s.h. and including specific required science courses as prescribed by the faculty of the college. Electives should be chosen so as to give the applicant a well-rounded educational background.

In order to meet minimum scholarship requirements, the applicant should attain a cumulative g.p.a. of 2.50. Since the quality of course work in predental science is basic to success in dentistry, special consideration to such college work is given by the admissions committee. The grade-point average is based on the University of Iowa’s marking system in which a grade of A is equivalent to four points. Other marking systems will be evaluated by the office of admissions and the committee on admissions of the college of dentistry.

Applicants who have completed the requirements for admission to dentistry five or more years prior to seeking admission to this college of dentistry will be considered by the admissions committee only under exceptional conditions.

Preference will be given to applicants who are residents of Iowa, but consideration will also be given to outstanding nonresidents.

Personal interviews will be required of applicants for admission to the college of dentistry. Applicants will be notified when they should appear for the required interviews with members of the admissions committee.

All applicants must complete the dental aptitude tests sponsored by the council on dental education of the American Dental Association. Tests are given three times annually. The University of Iowa is a testing center.

To facilitate early selection, applicants for admission to the college of dentistry are urged to complete the aptitude test no later than October to enable the admissions committee to begin its selection in December.
Accepted applicants are required to make the required deposit within two weeks after notification of favorable action on their applications. This deposit is not refundable but is credited toward the first fee payment. The applicant who fails to make the deposit within the time specified forfeits a place in the entering class.

Applicants accepted for admission are required to submit a satisfactory physical examination report to the university student health service within two weeks following notification of acceptance.

All applicants must also complete, through student health service, an X-ray film of the chest and a successful vaccination against smallpox prior to registration.

2.4(2) Advanced standing
Applications for admission with advanced standing are handled as individual cases.

681—2.5(262) College of Engineering

Address all inquiries regarding admission to the Director of Admissions, University of Iowa, Iowa City, Iowa.

Closing dates for receiving applications will be announced well in advance of the opening date of any session.

2.5(1) Admission of freshman students
The applicant must submit a formal application for admission and must have the secondary school provide a certificate of high school credits, including a complete statement of the applicant’s high school record, rank in class, scores on standardized tests, and certification of high school graduation. The applicant must also submit any other evidence such as a certificate of health that may be required by this university.

Each applicant must have attained satisfactory scores on the university’s required admission examinations, maintained a satisfactory cumulative grade-point average, achieved satisfactory rank in graduating class, and successfully completed all prerequisite courses. The university with the approval of the state board of regents shall establish and periodically review specific minimum requirements for admission to the college of engineering. Among the items to be so determined are test score, grade-point average, class rank and prerequisite courses. These specific determinations will be published in the university catalog.

From applicants who do not meet minimum admission requirements, the director of admissions will review individual records and may offer probationary admission.

From applicants who do not meet recommended requirements, the director of admissions will review individual records and may offer probationary admission.

681—2.6(262) Graduate College

Graduates of any college or university accredited by regional accrediting associations may if the academic record is satisfactory be admitted to the graduate college. Admission to the graduate college is not the equivalent of acceptance as a candidate for an advanced degree. Such acceptance is given usually after the completion in residence of work at the university and upon recommendation of the major department and approval by the dean of the graduate college. The acceptance of a student as a degree candidate is determined upon the merits of each individual case.

A student who is within 6 s.h. of having satisfied all the requirements for the bachelor’s degree at the University of Iowa may be given a tentative admission to the graduate college.

681—2.7(262) College of Law

2.7(1) Application for admission
Address all inquiries concerning admission to the office of admissions. Applications for admission must be presented to the admissions committee of the college of law for consideration. The committee will select those applicants who, in their judgment, appear to be best qualified for the study and practice of law. The law admissions committee may require personal interviews of applicants.

2.7(2) Admission with advanced standing
A transfer student may be eligible for admission if the student (a) has attended a school approved by the Association of American Law Schools; (b) is in good standing at the time of withdrawal (evidenced by a letter from the dean of the school from which transferring); (c) meets the admission requirements for beginning students; and (d) has done substantially above average work in the law school the student attended.

Where an applicant has completed more than one year of law study, advanced standing will be permitted only in exceptional cases. Applicants for admission with advanced standing should comply with the procedures required for admission to the first-year class.

681—2.8(262) College of Medicine

2.8(1) Application for admission
Address all inquiries regarding admission to the Director of Admissions, University of Iowa.

Applicants are urged to apply as early as possible, since this will give the admissions committee more time to devote to each application. Closing dates for receiving applications will be announced well in advance of the opening date of any session.

Fulfillment of the specific requirements for admission listed below does not ensure admission to the college of medicine. From the applicants meeting the specific requirements, the admissions committee of the college of medicine will select those applicants who in their judgment appear to be best qualified for the study and practice of medicine.

Prior to entrance an applicant must:

a. Have received the baccalaureate degree; or
b. Have completed three years of a combined baccalaureate-medicine curriculum which qualifies the applicant to receive the baccalaureate degree on completion of the first year in medicine; or

c. Have completed three years of a baccalaureate program which includes the general graduation requirements of the college of liberal arts and sciences of the University of Iowa for the combined baccalaureate degree.

Each applicant must place on file in the office of the director of admissions the completed application form and an official transcript from each college attended.

The college work as outlined below will suffice to meet the minimal academic requirements for admission to the college of medicine.

Applicants who have completed the baccalaureate degree and required courses five or more years prior to seeking admission to this college of medicine will be considered by the admissions committee only under exceptional conditions.
The college curriculum must include at least three years (equivalent to 96 s.h.) including specific required science courses as prescribed by the faculty of the college.

Students planning to study medicine should bear in mind that other college work is required in addition to prerequisite sciences because it offers an opportunity to secure a well-rounded education, which is of special importance to those entering the medical profession. In the selection of applicants, preference will be given to those who give evidence of having obtained such a broad education.

To be considered for admission, an applicant must have attained a g.p.a. of at least 2.50 for all college work undertaken. As the quality of work in premedical science is very basic to success in medicine, special attention will be given by the admissions committee to grades in science. The grade-point average is based upon the University of Iowa's marking system in which a grade of A is equivalent to four points. Other marking systems will be evaluated by the office of admissions and the committee on admissions of the college of medicine.

Preference will be given to applicants with high scholastic standing who are residents of Iowa, and consideration will also be given to outstanding nonresidents. Applicants for admission are required to take the medical college admissions test which is administered for the Association of American Medical Colleges. Applicants are required to complete this test in May or October of the year preceding that for which they are applying for admission. Students may make arrangements to apply for this examination through the university examination service, the University of Iowa.

Personal interviews will be required. Applicants will be contacted for the appointment for required interviews.

Applicants accepted for admission are required to submit a satisfactory physical examination report to the university student health service within two weeks following notification of acceptance. All applicants must also complete, through student health service, an X-ray film of the chest and successful vaccination against smallpox prior to registration.

2.8(2) Admission to advanced standing

If their work preparatory to entering a college of medicine would have met entrance requirements of this college, students from approved medical colleges may be admitted to advanced standing according to the following conditions:

Only applicants of high scholastic standing will be considered.

They must present certificates showing that they have satisfactorily completed courses equivalent to those already pursued by the class they wish to enter.

The committee on admission to advanced standing will decide in each case whether examinations in the various subjects will be required.

Applications will be considered only upon receipt of a statement from the dean or registrar of the college from which the applicant comes, showing the actual amount of time the student has spent in the study of medicine, the courses taken, and the grades received, together with a statement of the work preparatory to entering upon the course in medicine.

No advanced standing will be granted to students from other than approved medical schools. Students may be granted subject credit upon recommendation of the head of the department concerned, for work taken in other than medical schools.

2.8(3) Unclassified students

Applicants for admission to the college of medicine who are not candidates for a degree but who desire to register for special subjects, will be admitted to any lecture or laboratory course only upon complying with all the regular requirements for admission to such course or by action of the faculty upon recommendation of the professor in charge of the course.

681—2.9(262) College of Nursing

Applications for admission to the college of nursing should be submitted to the Director of Admissions, The University of Iowa, Iowa City, Iowa. Applicants for admission to the undergraduate program in nursing must present a minimum of 30 s.h. completed in an accredited college. For admission to the college of nursing an applicant must have:

1. Completed specific course work as prescribed by the faculty of the college. The director of admissions will provide a list of the course work required.

2. Completed the American College Tests.

3. Performed satisfactorily on all courses undertaken.

Applications from students who have minor deficiencies in meeting grade-point requirements specified above will be reviewed by the admissions committee of the college, and, upon favorable recommendation of the committee, such students may be granted conditional or probationary admissions.

Fulfillment of the minimum requirements listed above, however, does not assure admission to the college of nursing. From those applicants who meet the minimum requirements, the admissions committee will select the applicants who, in their judgment, appear to be best qualified.

681—2.10(262) College of Pharmacy

2.10(1) General basis for admission

Fulfillment of the specific requirements for admission does not ensure admission to the college of pharmacy. From the applicants meeting the specific requirements, the admissions committee will select those applicants who in their judgment appear to be best qualified. Applicants for admission to pharmacy should have graduated from an approved high school or have an equivalent amount of training.

2.10(2) College work

The college work as outlined below will meet the minimum academic requirements for admission to the college of pharmacy. The minimum should include 32 s.h. of college level work exclusive of credit in military and air science and physical education. The 32 s.h. must include:

Communication skills. Applicants must have demonstrated satisfactory achievement in communication skills according to the requirements of the college of liberal arts and sciences at the state University of Iowa. Applicants from other institutions may meet this requirement by presenting 6 s.h. of credit in English composition and rhetoric and 2 s.h. of credit in speech or an 8 s.h. year course in communication skills.

Inorganic chemistry and qualitative analysis, 8 s.h.

College mathematics, 8 s.h.

Physics or zoology, 8 s.h.

Students from other institutions may substitute a comparable 8 s.h. course in biology in lieu of zoology.

Military or air science (if available), 0-2 s.h.

Students who present minor deficiencies in meeting the above requirements may be admitted to the college of pharmacy upon the recommendation of the dean of admissions and the college of pharmacy.

2.10(3) Scholarship and application deadline

To be considered for admission to the college of pharmacy, students must have earned a 2.00 or C average on all collegiate work undertaken. The minimum g.p.a. of 2.00 is based on the state University of Iowa's marking system in which the grade of A is equivalent to four points. Applications for admission and the required official transcripts should be filed before March 1 for the class to enter pharmacy in September.

2.10(4) Required tests

Applicants for admission are required to take the American College Testing Program test.

2.10(5) Current requirements

Applicants who have completed work in a college of pharmacy accredited by the American Council on Pharmaceutical Education may if their college academic average is acceptable be admitted and granted advanced standing toward the degree of bachelor of science in pharmacy.

681—2.11(262) College of Liberal Arts and Sciences

2.11(1) General basis for admission

Fulfillment of the specific requirements for admission does not ensure admission to the college of liberal arts and sciences must meet the rules that are common to the three state institutions in Iowa as listed in 1.1(262), 1.2(262) and 1.3(262).

681—2.12(262) College of Education

Students at the university desiring professional work in education are registered in the college of liberal arts and sciences or the graduate college. Requirements for permission to take teacher-training courses are listed in the university catalog.